



Bel Fuse (**bel**) was founded in 1949 to manufacture and sell electronic components. bel offers fuse products ranging from standard glass fuses to miniature and micro fuses. The company has an engineering staff with extensive applications experience and is fully versed in the fusing requirements of UL, CSA, SEMKO, MITI and BSI.

In addition to fuses, **bel** manufactures delay lines, magnetic products, and thick film hybrids.

The company employs over 1300 people. It has its company headquarters in Jersey City, New Jersey, and locations in Indiana, Illinois, Hong Kong, Mainland China, France, and Ireland.

bel is a publicly traded company. It has established itself as a leader in the electronic components industry by consistently supplying quality products at competitive prices.



Bel Fuse Inc.

198 Van Vorst Street, Jersey City, New Jersey 07302 • (201) 432-0463 • FAX (201) 432-9542



LIGHTNING SURGE WITHSTAND FUSES

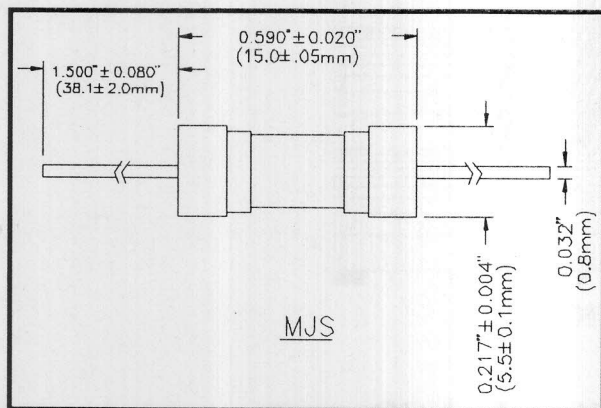
MJS

RATED 125 VOLTS, 0.125 - 3 AMPS

UL LISTED FILE E20624
CSA CERTIFIED FILE LR39772

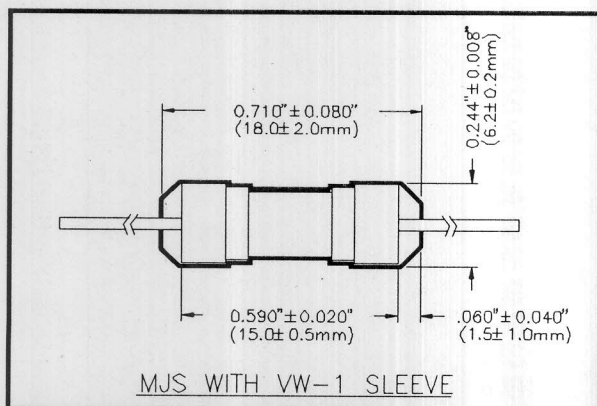
POWER CROSS RATING
600VAC, 40A

.35 & .5A UNITS DESIGNED TO MEET REQUIREMENTS IN AT&T SPEC. #WP90400



CLEARING TIMES

% RATED CURRENT	MIN	MAX
200%	3.0 SEC	20.0 SEC.
500%	.1 SEC.	1.5 SEC.
1,000%	.03 SEC.	0.3 SEC.



MJS fuses are primarily intended for use in telecommunication circuit applications requiring low current protection with high surge tolerance. They are typically used to replace heat coil type devices. They are designed to be placed between the line input and the surge arresting components (mov, gas tube, zener diode, air gap, etc.).

These fuses will withstand transient surge currents generated by lightning in accordance with the table shown on the overleaf.

MJS Fuses guard protected circuitry against sustained overload or short circuit conditions. Such sustained overloads may be generated by accidental contact between utility cables and phone lines (power line cross).

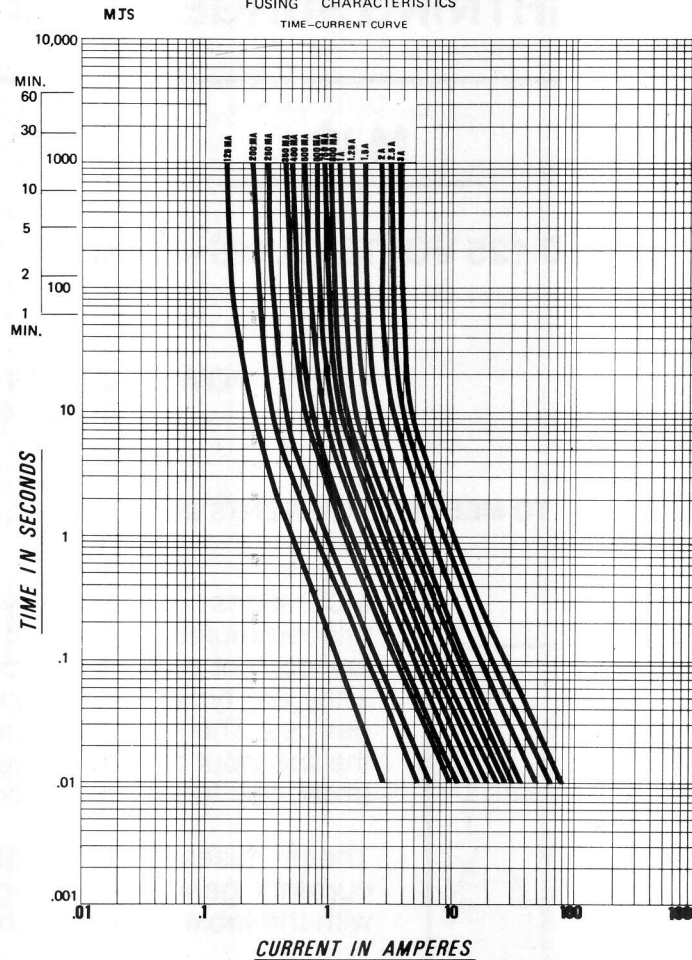
MJS Fuses are used in circuits to obtain compliance with the test requirements specified in UL 1459.

HEAT SHRINK TUBING

All MJS fuses can be provided with clear heat-shrink tubing covering the fuse body. This tubing prevents contact with adjacent live parts, prevents shorting to circuit traces and permits safe installation in tight spaces.

This tubing is UL Recognized with a VW-1 Flame Rating.

To order, specify "VW" after the part number (eg. MJS350VW).

MJS**bel**FUSING CHARACTERISTICS
TIME-CURRENT CURVE**LIGHTNING WITHSTAND RATINGS**

(Peak Pulse Currents For Which Fuse Elements Will Show Less Than 10% Change In DCR)

MJS CURRENT RATING	WAVEFORM 10 x 560 Microseconds 50 PULSES	WAVEFORM 10 x 1,000 Microseconds 25 PULSES
125 ma.	4 Amps.	3 Amps.
200 ma.	8	6
250 ma.	15	8
350 ma.	25	20
400 ma.	28	22
500 ma.	35	28
600 ma.	43	35
700 ma.	50	40
750 ma.	55	45
800 ma.	62	50
1.00 Amps.	78	70
1.25 Amps.	100	90
1.50 Amps.	130	100
2.00 Amps.	175	135
2.50 Amps.	240	180
3.00 Amps.	290	220

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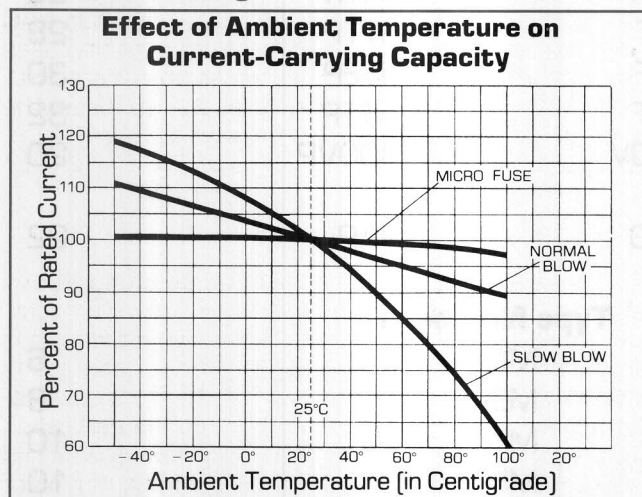
Fuseology

Voltage Rating

The rated voltage of the fuse refers to that voltage at which the fuse can safely clear a prospective short circuit. Voltage ratings of 125V and 250V are the most common ratings for miniature fuses used for protection of electronic circuits. Fuses for automotive circuit protection generally carry a 32 volt rating.

It is important to understand that a fuse can be used at any voltage less than its rated voltage without creating a hazard or affecting its fusing properties. A fuse with a rated voltage of 250V can handle circuits of 32V, 125V or any value less than its specified rating. The interrupting capacity of the fuse at its rated voltage is specified by the relevant standard and is discussed in detail under the sections describing these specific requirements. For general protection, a fuse should be selected with a voltage rating equal to or exceeding the voltage seen in the circuit to be protected.

Current Rating



The current rating of a fuse, expressed in amperes or milliamperes, reflects the value of current under which the fuse is able to carry without interruption under specified test conditions set by various approval organizations and described in the standards. The three standards covering fuses described in this catalog are UL 198G, CSA C22.2 and IEC 127.

Although fuses are designed to carry rated currents for long periods of time, these tests are run at approximately 25°C. Equipment and room ambients effect this current carrying capacity. See Figure 1 for effects of ambient temperature on fusing characteristics.

In addition, line voltage fluctuations and tolerances of components in equipment can substantially change estimated load currents. For long time reliability, it is wise to select a fuse with a current rating at least 125% of estimated full load current.

Fusing Characteristic

The fusing characteristic of a fuse is the relationship between the value of an overload current and the time it takes the fuse to open at that overload current.

Fuses with the same current rating can have substantially different fusing characteristics. These fusing characteristics are dependent upon the selection of the alloys used for the fusing element, application of various means of heat sinking and different types of internal construction. The time/current characteristics of the circuit should be carefully considered and plotted against the time/current characteristic curves for the fuses catalogued before the final selection is made.

There are two broad categories of fusing characteristics, normal blow and slow blow. The delays in normal blow fuses are minimal. They are not intentionally part of the design, but inherent to the physical characteristics of the fusible element. On the other hand, delays in slow blow fuses are specifically designed into the fuse to meet certain circuit requirements.

As a general rule, slow blow fuses should be selected for circuits subject to high inrush currents or other transient surges. Normal blow fuses should be selected for circuits where transients or surges are minimal or not anticipated.

Standards for Fuses

Standards have been set up by various responsible agencies throughout the world to cover the construction and performance of miniature fuses. In the United States, the agency is Underwriters Laboratories Inc., . The applicable standard is UL 198G. In Canada, the agency is Canadian Standards Association, . The applicable standard is CSA C22.2. Although C22.2 covers a broader range of fuse types than 198G, the requirements for miniature fuses are identical except for some environmental requirements. In Europe and Asia the agencies involved are members of the International Electrotechnical Commission (IEC) and the International Commission on Rules for the Approval of Electrical Equipment (CEE). The applicable standard is IEC 127, CEE4. Some countries may issue their own standards but their content, except for minor variation, are identical to the above publication.


Countries accepting IEC 127 are:

Australia	Japan	South Africa
Canada	Korea, Republic of	Sweden
Denmark	Netherlands	Switzerland
Finland	Norway	Turkey
Germany	Poland	Yugoslavia
Hungary	Portugal	Union of Soviet
Israel	Romania	Socialist Republics

Many countries maintain their own test facilities, but the Svenska Elektriska Materielkontrollanstalten, SEMKO, is generally used for approvals and the mark on fuses is universally respected. In order to clarify for the design engineer the meaning of the various marks and the tests conducted by the various agencies, a brief discussion follows outlining, in general terms, the electrical tests conducted, marking requirements, and types of approvals issued. The mechanical requirements detailed in the standards are not discussed

since dimensions and tolerances indicated on the separate fuse catalog sheets fall within the required specifications.

Underwriters Laboratories Inc.

In order for a fuse to carry the  mark, an indication of listing, it must meet all the requirements of UL 198G. Maximum clearing time is 60 minutes at 135% and 2 minutes at 200%. At 135%, two of three fuses must clear within the 60 minute time limit. A third fuse, if it has not cleared, must clear within 5 minutes at 150% of its rating. All miniature fuses must pass an interrupting test of 10,000 amperes at 125V. For a 250 volt rating, the fuse may either pass, at this voltage, a 10,000 ampere interrupting test or the optional test indicated below.

Fuse Rating (Amperes)	Interrupting Rating (Amperes)
1 or less	35
More than 1 but not more than 3.5	100
More than 3.5 but not more than 10	200
More than 10 but not more than 15	750
More than 15 but not more than 30	1500


A miniature fuse is defined as one that is tubular in shape. It cannot be larger than 9/32 inch in diameter and 1-7/16 inch long. A miniature fuse may not be less than: [1] 0.197 inch in diameter if 0.787 inch or longer, or [2] 1/4 inch in diameter if 5/8 inch or longer.

A listed miniature fuse must be marked with the name or trademark of the manufacturer and its electrical rating in amperes and volts. The ampere rating shall be in fractions, milliamperes or amperes. The interrupting rating may appear on the fuse, but must appear on the smallest package in which the fuse is packed.

In addition to miniature fuses, UL 198G defines the requirements for micro fuses. The shape may be tubular, cylindrical with leads from the base, or a rectangular prism. Size limits are specified for each shape. A micro fuse must carry 100% of its rated current. Maximum permissible clearing time is 10 minutes at 150% of rating and 1 minute at 200% of rating. The interrupting rating is 50 amperes.

There are occasions where a circuit may require a fuse of a special size or characteristic that does not fall within the specifications of UL 198G. At the request of a manufacturer, UL will test upon this fuse for an agreed set of specifications. It cannot carry the UL mark which indicates a listing, but literature and packaging can indicate it is "Recognized Under the Component Program." Such recognition is often described as a "Yellow Card" recognition. A recognized fuse has application limitations dependent upon the tests conducted and the end use.

Canadian Standards Association

In order for a fuse to carry the  mark, an indication of certification, it must meet the requirements of CSA C22.2. Since the interrupting requirements and blowing requirements are the same as those described for UL 198G, there is no need to describe these param-

eters further. It should be pointed out that the two standards have different specifications regarding permissible temperature rise on the fuse body, therefore certain ratings will not meet the requirements of both standards. At this time, CSA does not have a component recognition applicable to fuses, similar to the "Yellow Card" program at U.L.

IEC Publication 127, CEE Publication 4

At the present time, these publications contain four Standard Sheets describing miniature fuses and detail the method for testing them. Additional Standard Sheets are presently being developed. Three of the Standard Sheets cover 5 x 20mm fuses, the fourth covers 6.3 x 32mm fuses. Each fuse must be marked with the rated current in milliamperes or amperes, the rated voltage, maker's name or trademark, and a symbol denoting the time/current characteristic. Bel Fuse's individual catalog sheets for IEC type fuses indicate the time/current characteristics. Depending on the standard sheet involved, the publications define two sets of breaking capacity [interrupting] requirements. High-breaking capacity fuses must pass a 1500 amperes AC test at the rated voltage. Low-breaking capacity fuses must pass a test of 35 amperes or ten times rated current, whichever is greater. For 5 x 20mm fuses, the voltage for fuse tests is 250 volts. For 6.3 x 32mm, the voltage is 250V for ratings up to 2A, 150V from 2.5 thru 4A, and 60V for 5A thru 10A.

Test Fixtures

The standards and publications discussed above describe in very specific terms the procedure for testing fuses. Since fuses are heat sensitive devices, it is imperative, if accurate comparison of results is required, that fuses be tested according to these procedures. The heat sinking of a fuse during calibration tests can affect substantially both its blowing time and current carrying capability. For detailed description of test procedures, refer to the applicable standard.

Difference in Standards

Since the test procedures in the USA/Canadian standards and the European standards are substantially different, a fuse of a specific rating built to one standard can not be readily substituted for a fuse of the same rating built to the other. International committees are at work to develop a universally acceptable standard. In order to facilitate the approvals of finished products in countries using a fuse standard different from that of the country of original manufacture, Bel Fuse has designed a series of 5 x 20mm fuses built to UL/CSA requirements and a series of 1/4 x 1-1/4 inch fuses built to IEC standards. Described in the catalog as Types 5MF, 5TT and 3SF, these fuses are listed or certified by either UL/CSA or SEMKO as detailed on the individual catalog sheets. To aid the design engineer in selecting the proper substitutions the graphs below can be consulted as an approximate guide. As an example, from the comparison charts that follow, the closest 5mm fuse built to UL requirements [5TT] to match a 3.15 Ampere IEC Type T [5ST] would be a 5TT 4.2 Ampere.



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Type MQ Fast Acting Micro Fuses

Electrical Characteristics

Rating	Blow Time
100%	4 hours, minimum
200%	5 seconds, maximum

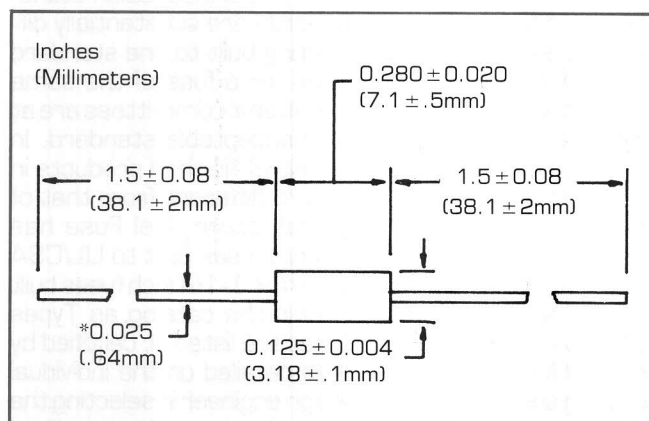
Mechanical Dimensions

Dimensions	Inches	(Millimeters)
Diameter	0.125	(3.18)
Length	0.280	(7.11)

Leads	Inches	(Millimeters)
Diameter	*0.025	(0.64)
Length	1.5	(38.1)

MQ is Recognized under the Components Program of UL and Certified by CSA through 15 amperes.

The MQ fuses are subminiature devices for use in applications where space requirements are an important consideration. Their molded construction provides mechanical strength and clearly defined dimensions. They are packaged in bulk or taped and reeled.



*Fuses with ratings of 10, 12 and 15 Amperes have lead diameters of .032 inch (.81 mm)
Specifications Subject To Change Without Notice

Catalog Number	Ampere Rating	Voltage Rating
MQ125	1/8	125AC/DC
MQ250	1/4	125
MQ375	3/8	125
MQ500	1/2	125
MQ750	3/4	125
MQ1	1	125
MQ1.5	1-1/2	125
MQ2	2	125
MQ2.5	2-1/2	125
MQ3	3	125
MQ3.5	3-1/2	125
MQ4	4	125
MQ5	5	125
MQ7	7	125
MQ10	10	125
MQ12	12	125
MQ15	15	125

Marking

Current rating, voltage rating, MQ designation and Bel Fuse logo are printed on each fuse in white ink.

Packaging

Type MQ fuses can be provided:

1. In Bulk.
2. On Axial Tape & Reel.
3. Radial Formed & Cut.
4. Euroform T&R.

See Page 41 for details.

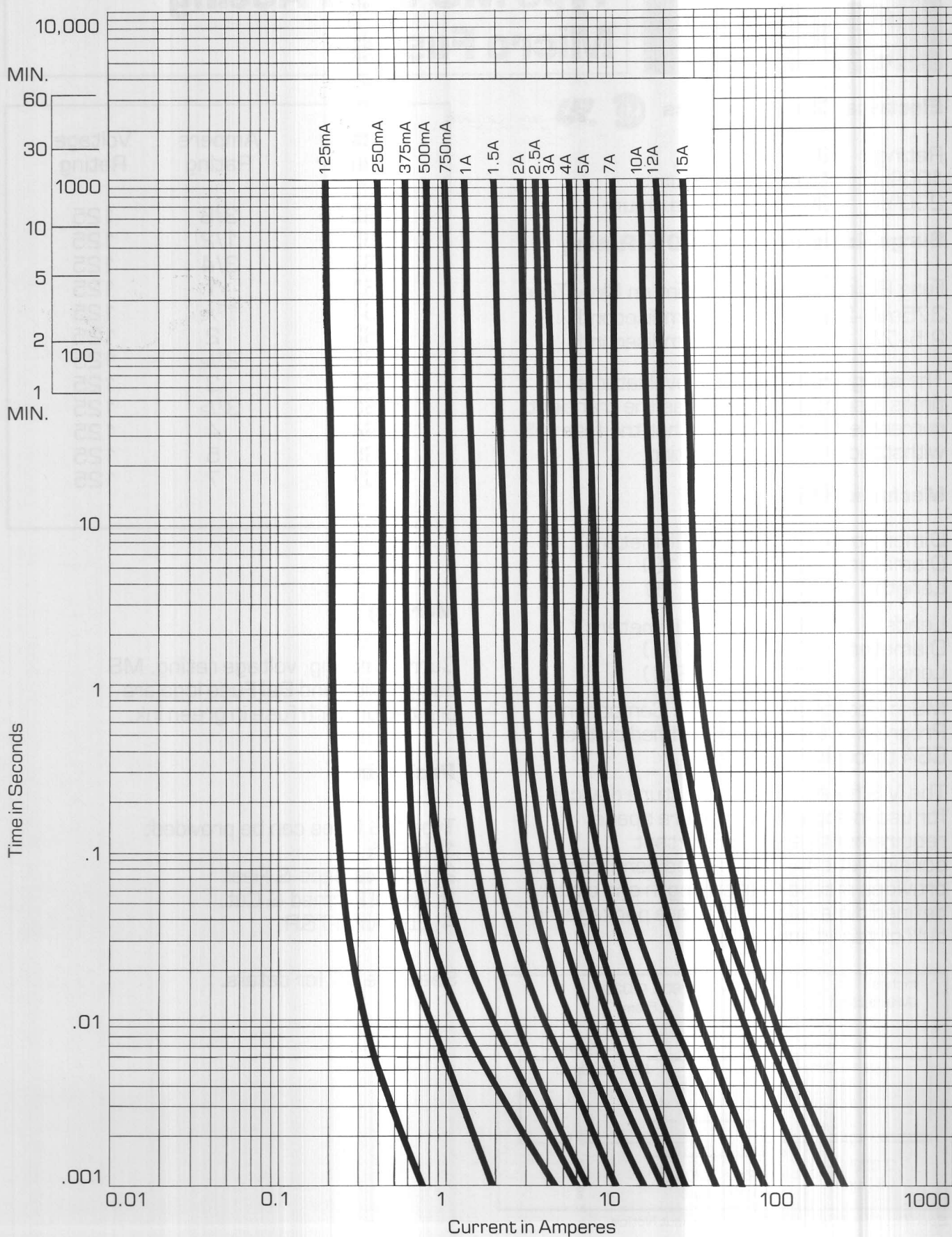


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Bel MQ

Time-Current Characteristics Curve



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Specifications Subject To Change Without Notice



Type MS Slow Acting Micro Fuses

Electrical Characteristics



Rating	Blow Time
100%	4 hours, minimum
200%	30 seconds, maximum

Surge Resistance at 800% Rating

Fuse Rating	Minimum Blow Time
375mA-2A	10 milliseconds
2.5-7A	15 milliseconds

The **surge resistance** is evaluated at 8 times fuse rating and defines the transient current level and duration that the fuse will withstand without interrupting.

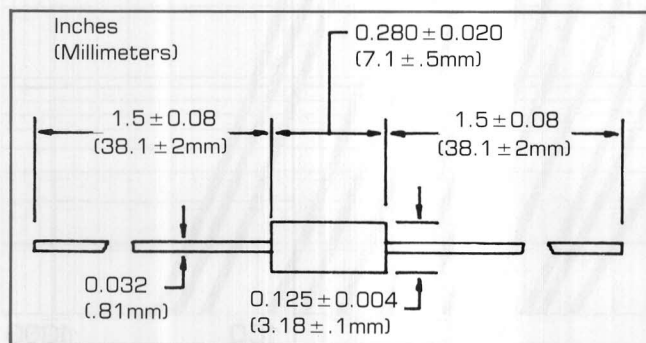
Mechanical Dimensions

Dimensions	Inches	(Millimeters)
Diameter	0.125	(3.18)
Length	0.280	(7.11)

Leads	Inches	(Millimeters)
Diameter	0.032	(0.81)
Length	1.5	(38.1)

MS is Recognized under the Components Program of the UL and Certified by the CSA through 7 amperes.

The MS fuses are subminiature devices for use in applications where space requirements are an important consideration. Their molded construction provides mechanical strength and clearly defined dimensions. They are packaged in bulk or taped and reeled.



Specifications Subject To Change Without Notice

Catalog Number	Ampere Rating	Voltage Rating
MS375	3/8	125
MS500	1/2	125
MS750	3/4	125
MS1	1	125
MS1.5	1 1/2	125
MS2	2	125
MS2.5	2 1/2	125
MS3	3	125
MS3.5	3 1/2	125
MS4	4	125
MS5	5	125
MS7	7	125

Marking

Current rating, voltage rating, MS designation and Bel Fuse logo are printed on each fuse in green ink.

Packaging

Type MS fuses can be provided:

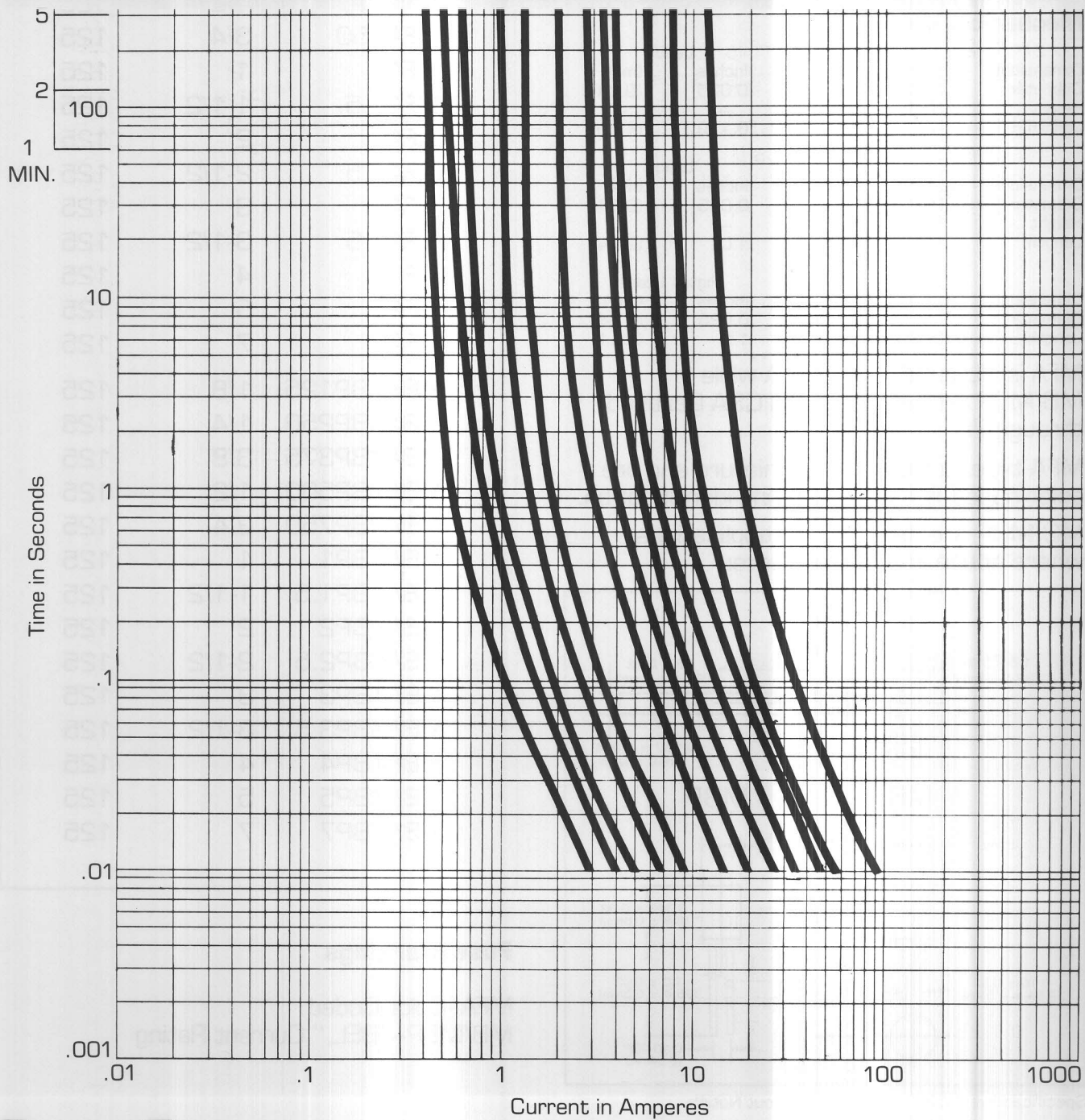
1. In Bulk.
2. On Axial Tape & Reel.
3. Radial Formed & Cut.
4. Euroform T&R.

See Page 41 for details.



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Specifications Subject To Change Without Notice



Type MFA/MB/MBP Micro Fuse Series

Electrical Characteristics

MB/MBP



MFA



Rating	Blow Time
100%	4 hours minimum
150%	10 minutes maximum
200%	5 seconds maximum

Mechanical Dimensions

Dimensions	MB		Leads	
	Inches	(mm)	Inches	(mm)
Diameter	0.250	(6.35)	0.025	(0.64)
Height	0.348	(8.80)	—	—
Length	—	—	0.170	(4.30)

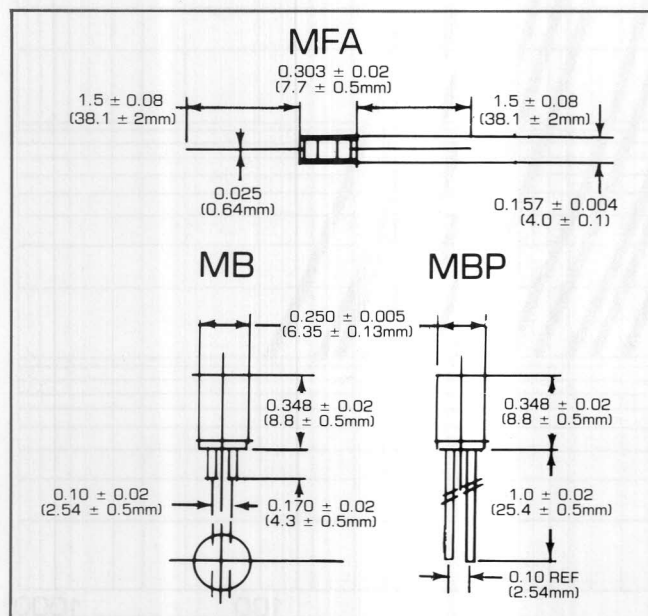
Dimensions	MBP		Leads	
	Inches	(mm)	Inches	(mm)
Diameter	0.250	(6.35)	0.025	(0.64)
Height	0.348	(8.80)	—	—
Length	—	—	1.0	(25.4)

Dimensions	MFA		Pigtail Leads	
	Inches	(mm)	Inches	(mm)
Diameter	0.157	(4.0)	0.025	(0.64)
Length	0.303	(7.7)	1.5	(38.1)

MFA is UL listed through 7A while MB/MBP are UL Listed and CSA Certified through 7A.

MFA type fuses are subminiature and are color coded for current rating identification.

MB/MBP are designed for applications where space is a critical factor:

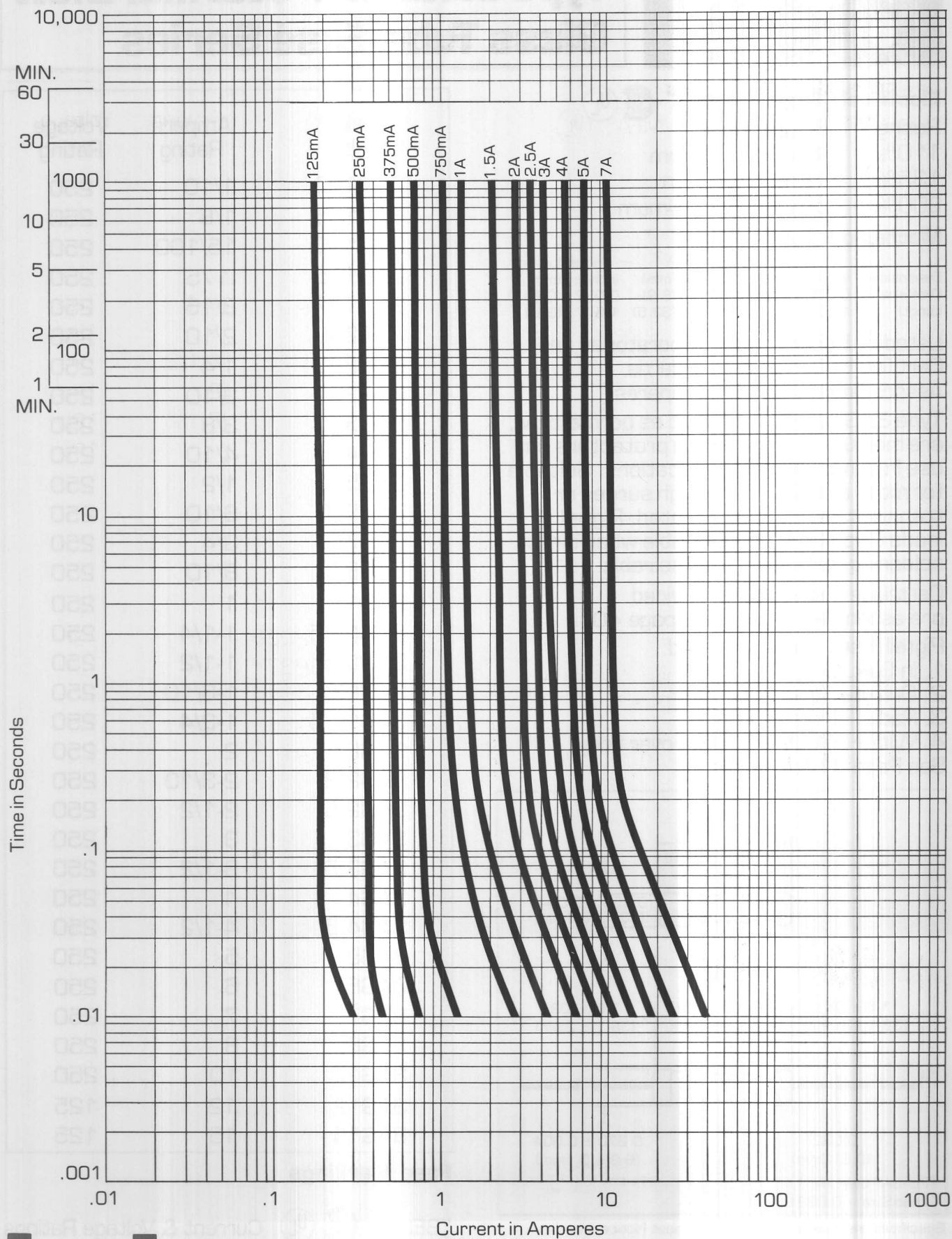


Specifications Subject To Change Without Notice

Catalog Number	Ampere Rating	Voltage Rating
MFA125	1/8	125
MFA250	1/4	125
MFA375	3/8	125
MFA500	1/2	125
MFA750	3/4	125
MFA1	1	125
MFA1.5	1-1/2	125
MFA2	2	125
MFA2.5	2-1/2	125
MFA3	3	125
MFA3.5	3-1/2	125
MFA4	4	125
MFA5	5	125
MFA7	7	125
MB/MBP125	1/8	125
MB/MBP250	1/4	125
MB/MBP375	3/8	125
MB/MBP500	1/2	125
MB/MBP750	3/4	125
MB/MBP1	1	125
MB/MBP1.5	1-1/2	125
MB/MBP2	2	125
MB/MBP2.5	2-1/2	125
MB/MBP3	3	125
MB/MBP3.5	3-1/2	125
MB/MBP4	4	125
MB/MBP5	5	125
MB/MBP7	7	125

Fuse Markings

MFA—Color Coded
MB/MBP—"BEL," Current Rating



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Specifications Subject To Change Without Notice



Type 3AG/3AP Normal Blow Glass Tube Fuse Series

Electrical Characteristics



Rating	Blow Time
110%	4 hours, minimum
135%	1 hour, maximum
200%	5 seconds, maximum

Mechanical Dimensions

	3AG		3AP		Pigtail Leads	
Dimensions	Inches	(mm)	Inches	(mm)	Inches	(mm)
Diameter	0.250	(6.35)	0.270	(6.9)	0.032	(0.813)
Length	1.25	(31.8)	1.28	(32.5)	1.5	(38.1)

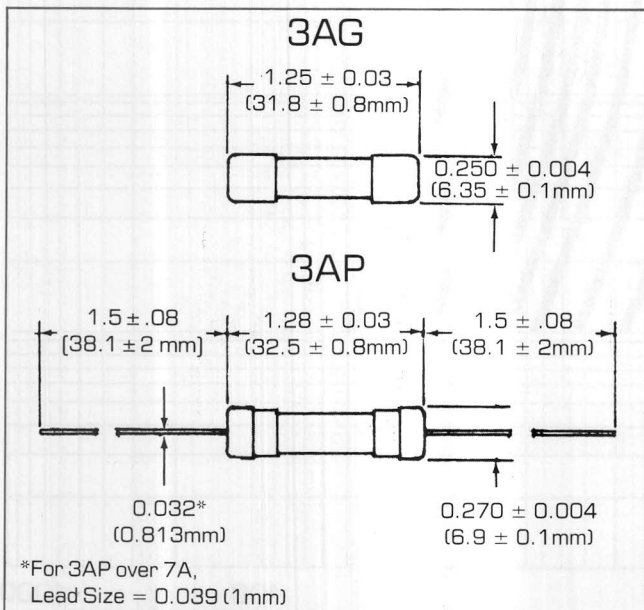
Listed by Underwriters' Laboratories and Certified by Canadian Standards Association through 15 Amperes.

Type 3AG fuses, described as normal blow, are medium to quick acting protectors for use in general circuit applications. Suitable for most circuits where high surges or transients are not anticipated. Pigtail leads (Type 3AP) are available when direct soldering into circuits is desirable.

Cartridge fuses can be provided pre-assembled in clips, see page 40.

Pigtail fuses can be provided:

1. In Bulk.
 2. On Axial Tape & Reel.
 3. Radial Formed and Cut.
 4. With Heat Shrink Tubing over body.
- See Page 41 for details.

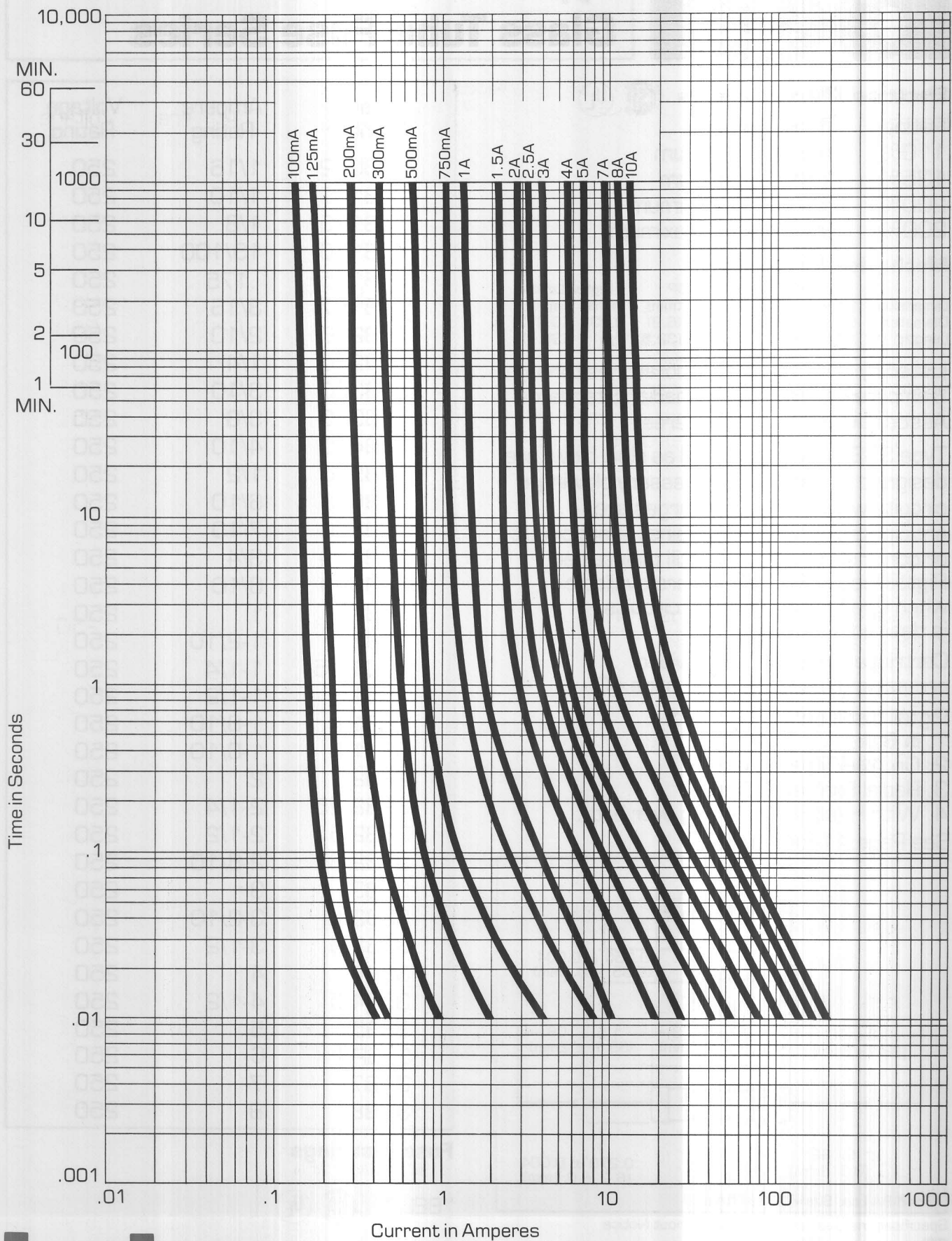


Specifications Subject To Change Without Notice

Catalog Number	Ampere Rating	Voltage Rating
3AG100	1/10	250
3AG125	1/8	250
3AG150	15/100	250
3AG175	.175	250
3AG187	3/16	250
3AG200	2/10	250
3AG250	1/4	250
3AG300	3/10	250
3AG375	3/8	250
3AG400	4/10	250
3AG500	1/2	250
3AG600	6/10	250
3AG750	3/4	250
3AG800	8/10	250
3AG1	1	250
3AG1.25	1-1/4	250
3AG1.5	1-1/2	250
3AG1.6	1-6/10	250
3AG1.75	1-3/4	250
3AG2	2	250
3AG2.3	2-3/10	250
3AG2.5	2-1/2	250
3AG3	3	250
3AG3.5	3-1/2	250
3AG4	4	250
3AG4.5	4-1/2	250
3AG5	5	250
3AG6	6	250
3AG7	7	250
3AG8	8	250
3AG10	10	250
3AG12	12	125
3AG15	15	125

Fuse Markings

"BEL," Current & Voltage Ratings



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Specifications Subject To Change Without Notice



Type 3SB/3SBP Slow Blow Glass Tube Fuse Series

Electrical Characteristics



Rating	Blow Time
110%	4 hours, minimum
135%	1 hour, maximum
200%	5 seconds, minimum
200%	30 seconds, maximum

Mechanical Dimensions

	3SB		3SBP		Pigtail Leads	
Dimensions	Inches	(mm)	Inches	(mm)	Inches	(mm)
Diameter	0.250	(6.35)	0.270	(6.9)	0.032	(0.813)
Length	1.25	(31.8)	1.28	(32.5)	1.5	(38.1)

Listed by Underwriters' Laboratories through 8 amperes. Certified by Canadian Standards Association through 8 amperes.

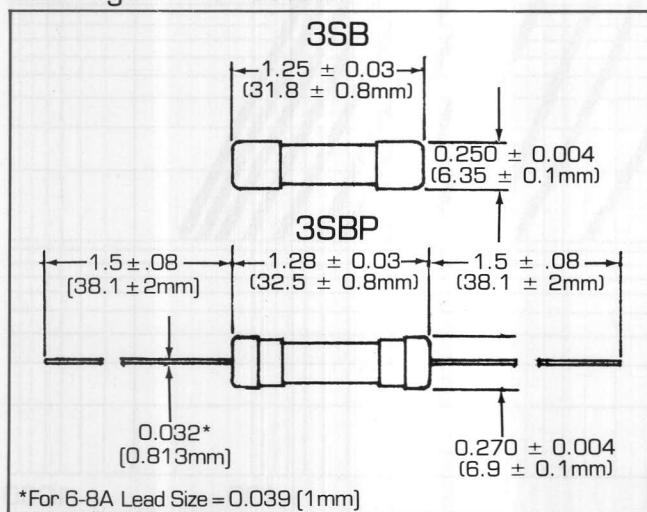
Type 3SB fuses, described as slow blow, are designed to prevent unnecessary blowing in circuits where transient surges are anticipated. Protection against short circuit or continued overload is still maintained. Pigtail leads (Type 3SBP) are available when direct soldering into circuits is desired.

Cartridge fuses can be provided pre-assembled in clips, see page 40.

Pigtail fuses can be provided:

1. In Bulk.
2. On Axial Tape & Reel.
3. Radial Formed & Cut.
4. With Heat Shrink Tubing over body.

See Page 41 for details.



Specifications Subject To Change Without Notice

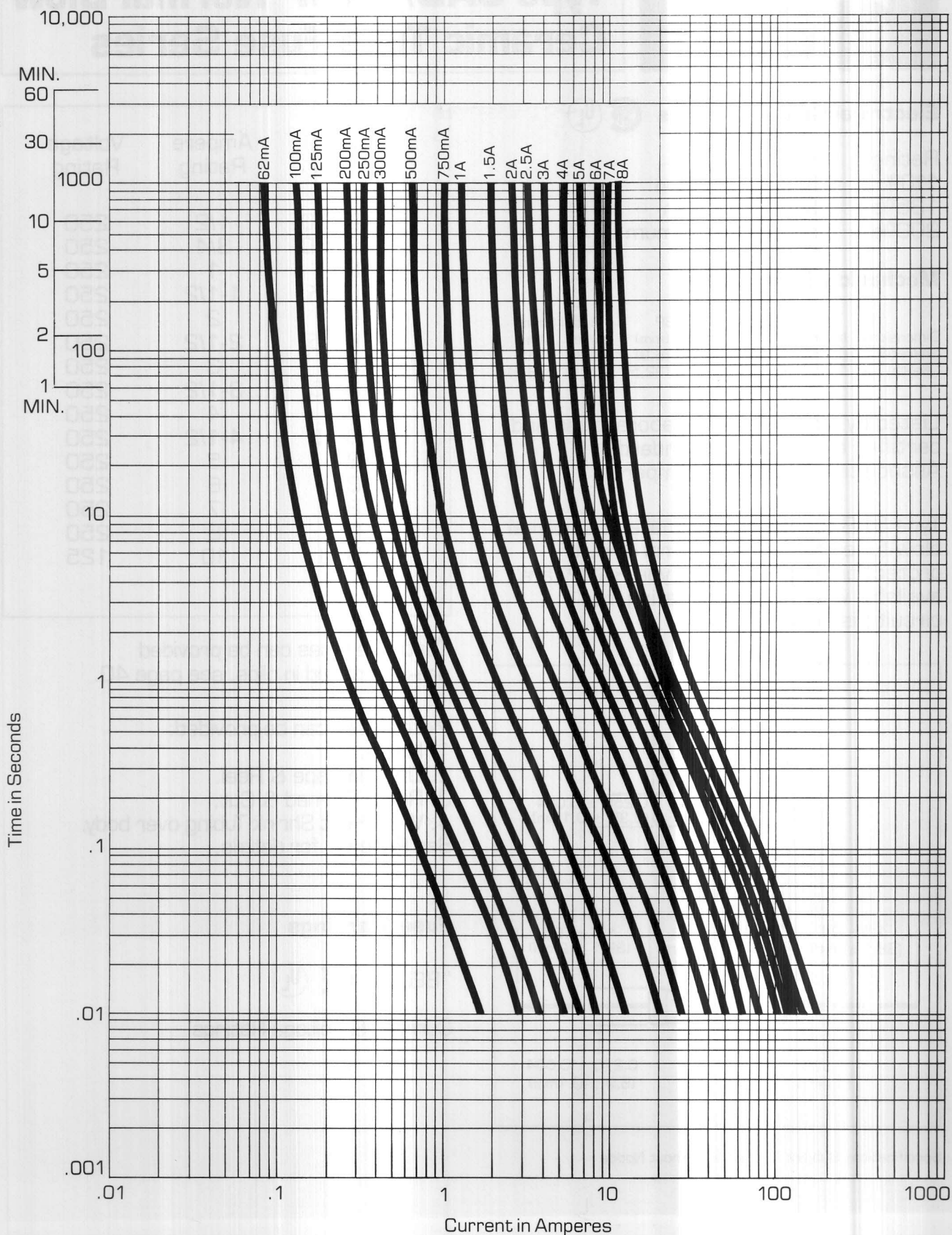
Catalog Number	Ampere Rating	Voltage Rating
3SB062	1/16	250
3SB100	1/10	250
3SB125	1/8	250
3SB150	15/100	250
3SB175	.175	250
3SB187	3/16	250
3SB200	2/10	250
3SB250	1/4	250
3SB300	3/10	250
3SB375	3/8	250
3SB400	4/10	250
3SB500	1/2	250
3SB600	6/10	250
3SB700	7/10	250
3SB750	3/4	250
3SB800	8/10	250
3SB1	1	250
3SB1.2	1-2/10	250
3SB1.25	1-1/4	250
3SB1.5	1-1/2	250
3SB1.6	1-6/10	250
3SB1.8	1-8/10	250
3SB2	2	250
3SB2.25	2-1/4	250
3SB2.5	2-1/2	250
3SB2.8	2-8/10	250
3SB3	3	250
3SB3.2	3-2/10	250
3SB3.5	3-1/2	250
3SB4	4	250
3SB4.5	4-1/2	250
3SB5	5	250
3SBP6	6	250
3SB7	7	250
3SB8	8	250

Fuse Markings

"BEL,"  

Current Rating, "250V"





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Specifications Subject To Change Without Notice



Type 3AB/3ABP Normal Blow Ceramic Tube Fuse Series

Electrical Characteristics



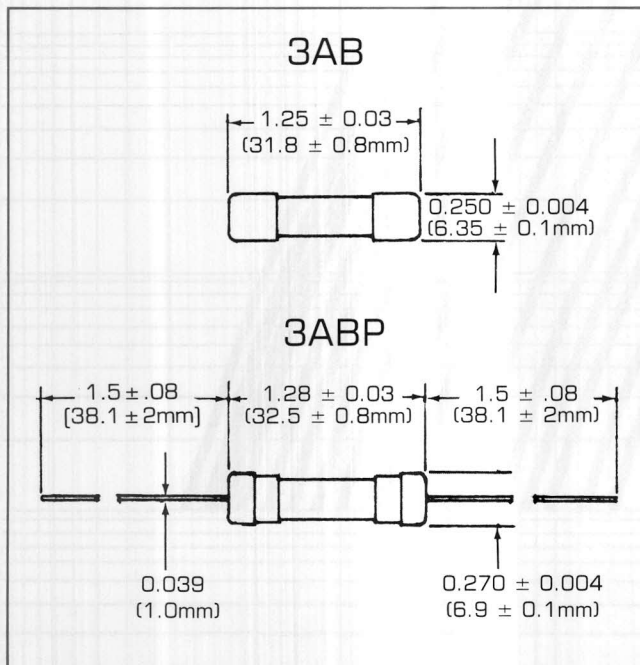
Rating	Blow Time
110%	4 hours, minimum
135%	1 hour, maximum
200%	5 seconds, maximum

Mechanical Dimensions

	3AB		3ABP		Pigtail Leads	
Dimensions	Inches	(mm)	Inches	(mm)	Inches	(mm)
Diameter	0.250	(6.35)	0.270	(6.9)	0.039	(1.0)
Length	1.25	(31.8)	1.28	(32.5)	1.5	(38.1)

Listed by Underwriters' Laboratories and certified by Canadian Standards Association through 10 Amperes.

Type 3AB fuses are designated as normal blow fuses for use in general circuit protection. Pigtail leads (Type 3ABP) are available when direct soldering into circuits is desired.



Specifications Subject To Change Without Notice



Catalog Number	Ampere Rating	Voltage Rating
3AB500	1/2	250
3AB750	3/4	250
3AB1	1	250
3AB1.5	1-1/2	250
3AB2	2	250
3AB2.5	2-1/2	250
3AB3	3	250
3AB3.5	3-1/2	250
3AB4	4	250
3AB4.5	4-1/2	250
3AB5	5	250
3AB6	6	250
3AB7	7	250
3AB8	8	250
3AB10	10	125

Cartridge fuses can be provided pre-assembled in clips, see page 40.

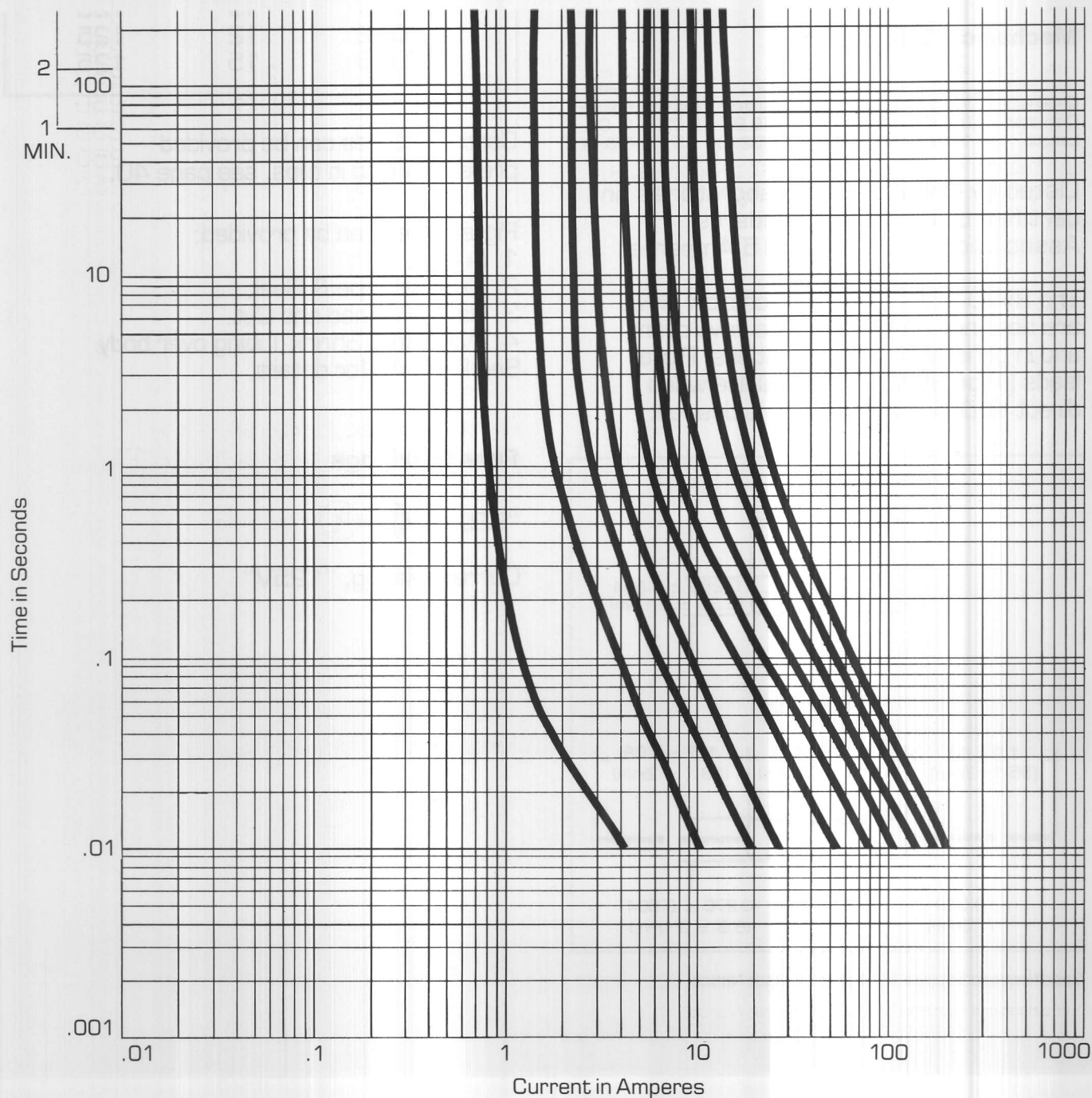
Pigtail fuses can be provided:

1. In Bulk.
 2. On Axial Tape & Reel.
 3. Radial Formed & Cut.
 4. With Heat Shrink Tubing over body.
- See Page 41 for details.

Fuse Markings

"BEL,"  

Current & Voltage Ratings



bel **Bel Fuse Inc.**

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Specifications Subject To Change Without Notice



Type 3WO/3WOP Slow Blow Glass Tube Fuse Series

Electrical Characteristics



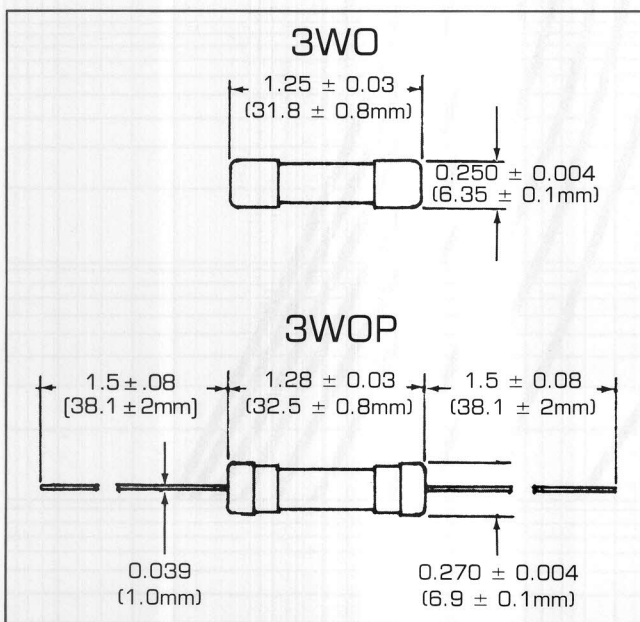
Rating	Blow Time
110%	4 hours, minimum
135%	1 hour, maximum
200%	5 seconds, minimum
200%	30 seconds, maximum

Mechanical Dimensions

	3WO		3WOP		Pigtail Leads	
Dimensions	Inches	(mm)	Inches	(mm)	Inches	(mm)
Diameter	0.250	(6.35)	0.270	(6.9)	0.039	(1.0)
Length	1.25	(31.8)	1.28	(32.5)	1.5	(38.1)

Listed by Underwriters' Laboratories and certified by Canadian Standards Association through 6 to 15 Amperes.

The 3WO fuses, described as slow blow, are designed for use in microwave ovens and in general circuit applications. Pigtail leads [Type 3WOP] are available when direct soldering into circuits is desired.



Specifications Subject To Change Without Notice



Catalog Number	Ampere Rating	Voltage Rating
3WO6	6	125
3WO7	7	125
3WO8	8	125
3WO10	10	125
3WO12	12	125
3WO15	15	125

Cartridge fuses can be provided pre-assembled in clips, see page 40.

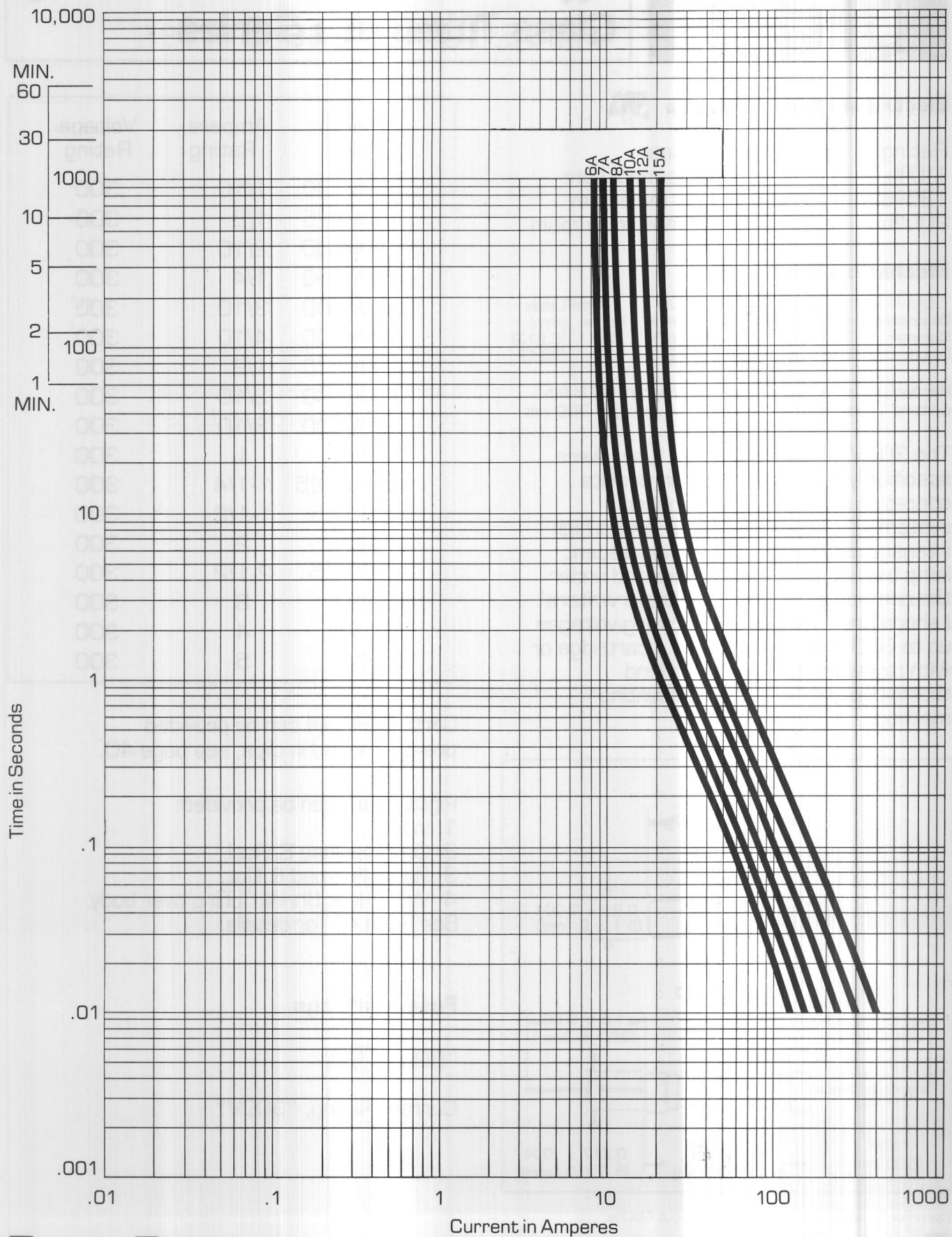
Pigtail fuses can be provided:

1. In Bulk.
 2. On Axial Tape & Reel.
 3. Radial Formed and Cut.
 4. With Heat Shrink Tubing over body.
- See Page 41 for details.

Fuse Markings

"BEL,"  

Current Rating, "125V"





Type 300V/300VP Fast Acting Glass Tube Fuse Series

Electrical Characteristics

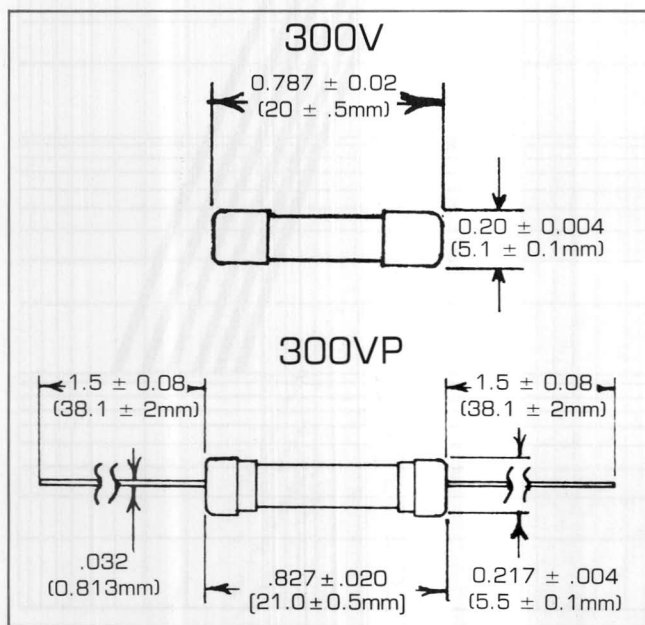
Rating	Blow Time
110%	4 hours, minimum
135%	1 hour, maximum
200%	5 seconds, maximum

Mechanical Dimensions

	300V		300VP		Pigtail Leads	
Dimensions	Inches	[mm]	Inches	[mm]	Inches	[mm]
Diameter	0.20	[5.1]	0.217	[5.5]	.032	[0.813]
Length	0.787	[20]	.827	[21]	1.5	[38.1]

Recognized under the component program of Underwriters' Laboratories up to a voltage rating of 300 volt.

The 300V/300VP miniature fuses were specifically designed for use in circuits operating on 277 volt distribution systems. Typical applications involve high intensity discharge (HID) or fluorescent lamp ballasts. They are recognized under the component program of Underwriters' Laboratories for use at operating voltages up to 300 volts. Available as a cartridge or with pigtail leads these fuses lend themselves to a variety of mounting methods.



Specifications Subject To Change Without Notice


Catalog Number	Ampere Rating	Voltage Rating
300V100	1/10	300
300V125	1/8	300
300V200	2/10	300
300V250	1/4	300
300V300	3/10	300
300V400	4/10	300
300V500	1/2	300
300V600	6/10	300
300V800	8/10	300
300V1	1	300
300V1.25	1-1/4	300
300V1.5	1-1/2	300
300V2	2	300
300V2.5	2-1/2	300
300V3	3	300
300V4	4	300
300V5	5	300

Cartridge fuses can be provided pre-assembled in clips, see page 40.

Pigtail fuses can be provided:

1. In Bulk.
 2. On Axial Tape & Reel.
 3. Radial Formed & Cut.
 4. With Heat Shrink Tubing over body.
- See Page 41 for details.

Fuse Markings

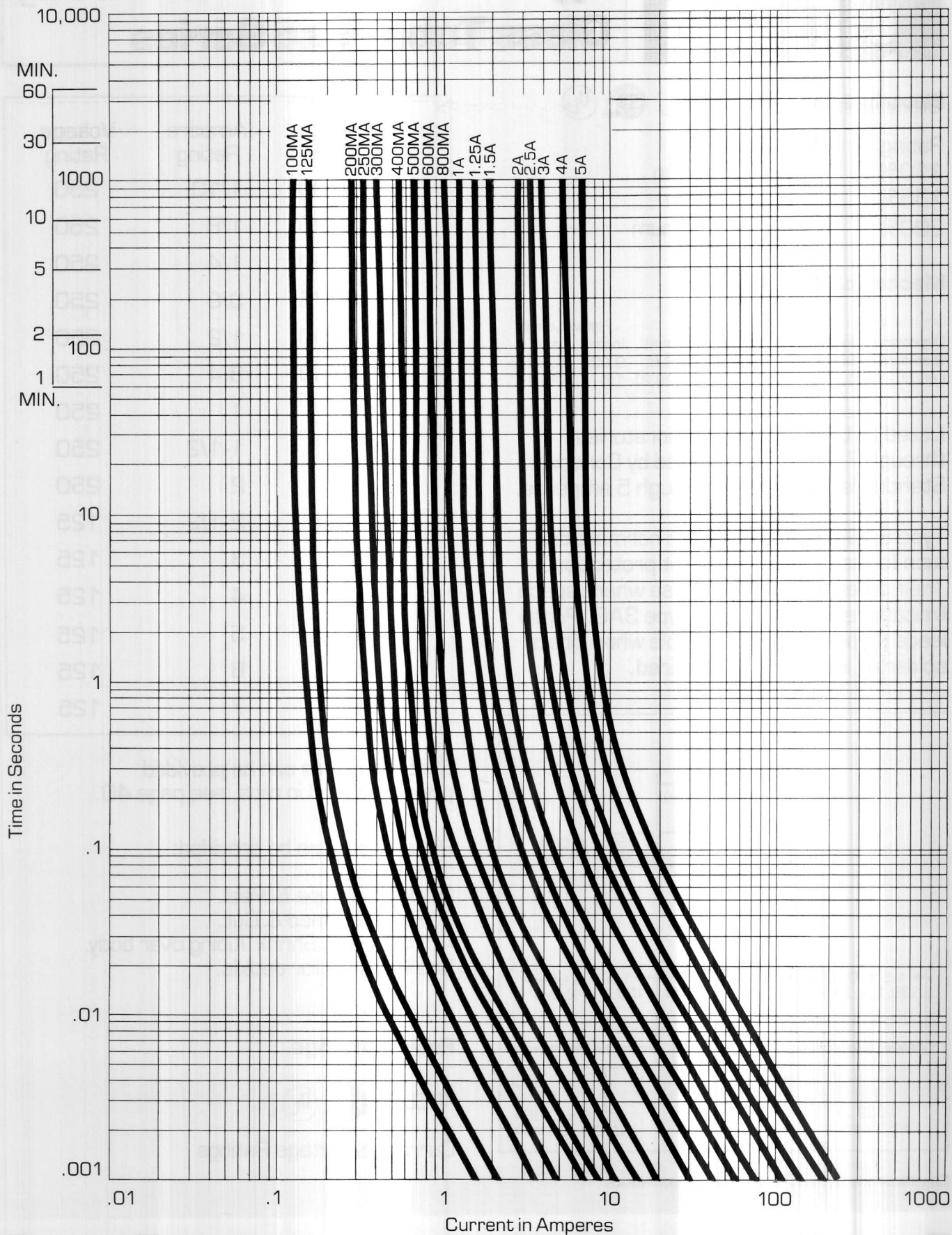
"BEL," 

Current Rating, "300V"



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Type 8AG/8AP Normal Blow Glass Tube Fuse Series

Electrical Characteristics



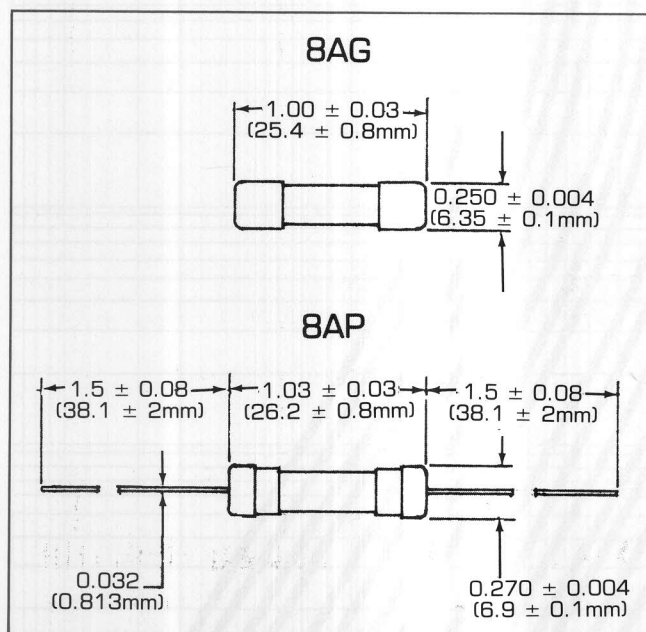
Rating	Blow Time
110 %	4 hours, minimum
135 %	1 hour, maximum
200 %	5 second, maximum

Mechanical Dimensions

	8AG		8AP		Pigtail Leads	
Dimensions	Inches	(mm)	Inches	(mm)	Inches	(mm)
Diameter	0.250	(6.35)	0.270	(6.9)	0.032	(0.813)
Length	1.00	(25.4)	1.03	(26.2)	1.5	(38.1)

Listed by Underwriters' Laboratories through 7 amperes. Certified by Canadian Standards Association through 5 amperes.

Type 8AG is designated as a normal blow fuse for use in general circuit protection. Their smaller size permits use where space limitations prevent use of Type 3AG. Pigtail leads [Type 8AP] are available when direct soldering into circuits is desired.



Specifications Subject To Change Without Notice



Catalog Number	Ampere Rating	Voltage Rating
8AG100	1/10	250
8AG125	1/8	250
8AG250	1/4	250
8AG375	3/8	250
8AG500	1/2	250
8AG750	3/4	250
8AG1	1	250
8AG1.5	1-1/2	250
8AG2	2	250
8AG2.5	2-1/2	125
8AG3	3	125
8AG4	4	125
8AG5	5	125
8AG6	6	125
8AG7	7	125

Cartridge fuses can be provided pre-assembled in clips, see page 40.

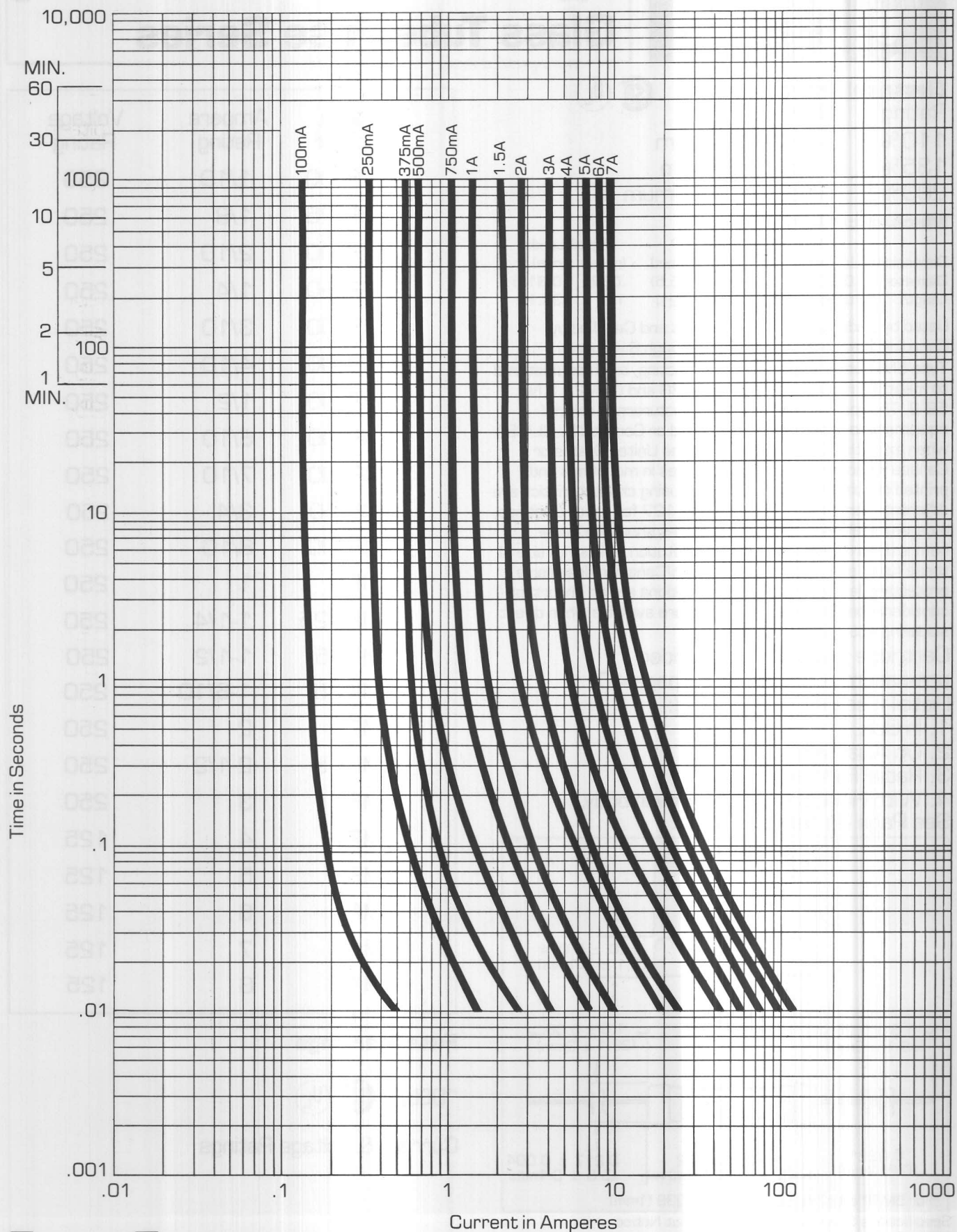
Pigtail fuses can be provided:

1. In Bulk.
 2. On Axial Tape & Reel.
 3. Radial Formed & Cut.
 4. With Heat Shrink Tubing over body.
- See Page 41 for details.

Fuse Markings

"BEL,"  

Current & Voltage Ratings



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Specifications Subject To Change Without Notice



Type 5MF/5MFP Fast Acting Glass Tube Fuse Series

Electrical Characteristics

Rating	Blow Time
110 %	4 hours, minimum
135 %	1 hour, maximum
200 %	5 seconds, maximum



Mechanical Dimensions

	5MF		5MFP		Pigtail Leads	
Dimensions	Inches	(mm)	Inches	(mm)	Inches	(mm)
Diameter	0.20	(5.1)	0.217	(5.5)	.032	(0.813)
Length	0.787	(20)	.827	(21)	1.5	(38.1)

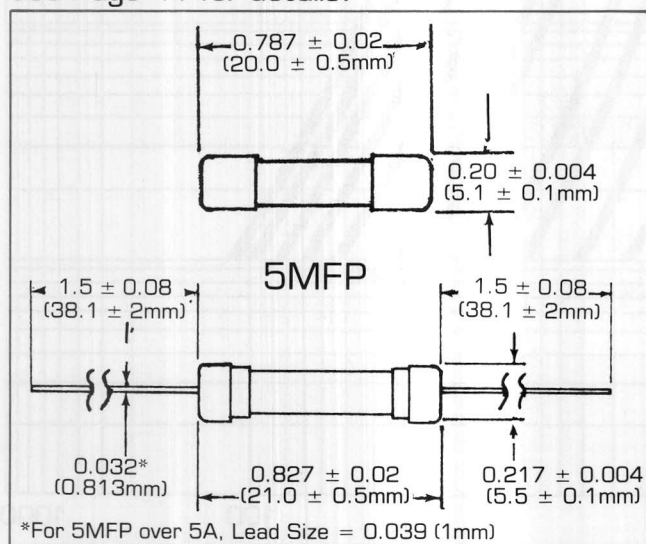
Listed by Underwriters' Laboratories and Certified by Canadian Standards Association through 8 amperes.

Type 5MF fuses, described as fast acting, are manufactured to meet the requirements of UL 198G and CSA 22.2 No. 59-2. They permit European manufacturers of original equipment to substitute a fuse Listed or Certified by UL/CSA when exporting their equipment to the United States or Canada without making costly changes in mountings and printed circuit board layouts. Since fusing characteristics are different than those specified by IEC 127 for specific ratings, a careful analysis of the blowing curves should be made before determining the proper substitution. The small size of these fuses also offers the American/Canadian designer a protective device where space limitations are an important consideration. Pigtail leads [5MFP] are available when direct soldering into circuits is desired.

Cartridge fuses can be provided pre-assembled in clips, see page 40.

Pigtail fuses can be provided:



1. In Bulk.
 2. On Axial Tape & Reel.
 3. Radial Formed & Cut.
 4. With Heat Shrink Tubing over body.
- See Page 41 for details.



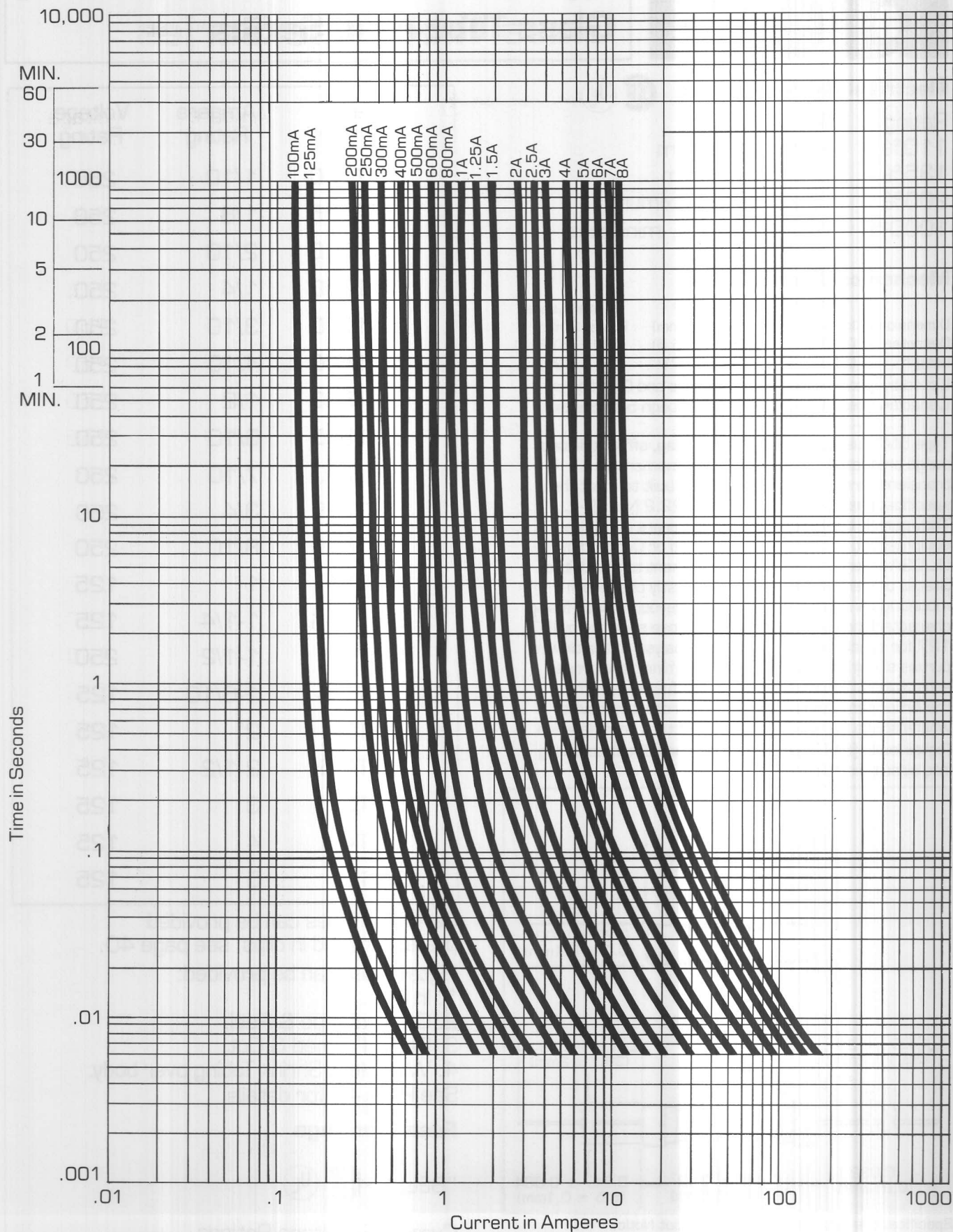
Specifications Subject To Change Without Notice

Catalog Number	Ampere Rating	Voltage Rating
5MF100	1/10	250
5MF125	1/8	250
5MF200	2/10	250
5MF250	1/4	250
5MF300	3/10	250
5MF400	4/10	250
5MF500	1/2	250
5MF600	6/10	250
5MF700	7/10	250
5MF750	3/4	250
5MF800	8/10	250
5MF1	1	250
5MF1.25	1-1/4	250
5MF1.5	1-1/2	250
5MF1.6	1-6/10	250
5MF2	2	250
5MF2.5	2-1/2	250
5MF3	3	250
5MF4	4	125
5MF5	5	125
5MF6	6	125
5MF7	7	125
5MF8	8	125

Fuse Markings

"BEL,"  

Current & Voltage Ratings



Bel Fuse Inc.

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Specifications Subject To Change Without Notice



Type 5MT/5MTP Medium Blow Glass Tube Fuse Series

Electrical Characteristics



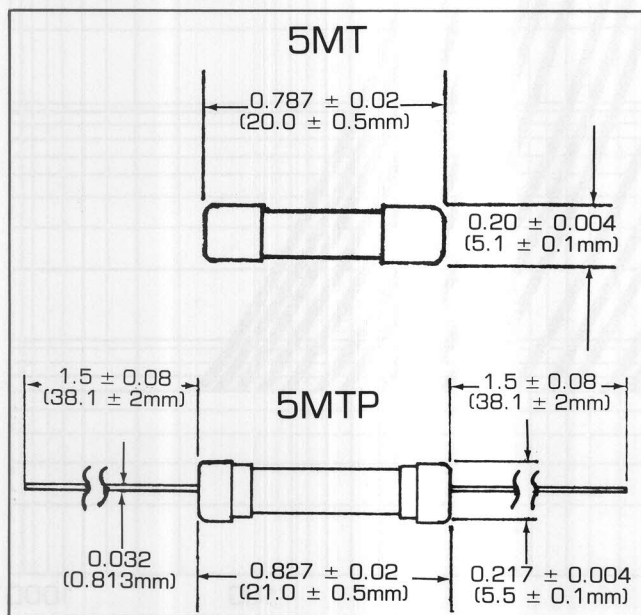
Rating	Blow Time
110%	4 hours, minimum
135%	1 hour, maximum
200%	15 seconds, maximum
1000%	10 milliseconds, minimum

Mechanical Dimensions

	5MT		5MTP		Pigtail Leads	
Dimensions	Inches	(mm)	Inches	(mm)	Inches	(mm)
Diameter	0.20	(5.1)	0.217	(5.5)	.032	(0.813)
Length	0.787	(20)	.827	(21)	1.5	(38.1)

Listed by Underwriters' Laboratories and Certified by Canadian Standards Association through 5 amperes.

Type 5MT fuses, described as time lag, offer additional surge protection for circuits where momentary transients are anticipated. They are built to meet the specifications of UL 198G and CSA22.2 No. 59-2. They permit the European manufacturers of original equipment to substitute a fuse Listed or Certified by UL/CSA when exporting their equipment to the United States or Canada without making costly changes in mountings and printed circuit board layouts. Since fusing characteristics are different than those specified by IEC 127 for specific ratings, a careful analysis of the blowing curves should be made before determining the proper substitution. The small size of these fuses also offers the American/Canadian designer a protective device where space limitations are an important consideration. Pigtail leads [5MTP] are available when direct soldering into circuits is required.



Specifications Subject To Change Without Notice



Catalog Number	Ampere Rating	Voltage Rating
5MT100	1/10	250
5MT125	1/8	250
5MT200	2/10	250
5MT250	1/4	250
5MT300	3/10	250
5MT400	4/10	250
5MT500	1/2	250
5MT600	6/10	250
5MT700	7/10	250
5MT750	3/4	250
5MT800	8/10	250
5MT1	1	125
5MT1.25	1-1/4	125
5MT1.5	1-1/2	250
5MT1.6	1-6/10	125
5MT2	2	125
5MT2.5	2-1/2	125
5MT3	3	125
5MT4	4	125
5MT5	5	125

Cartridge fuses can be provided pre-assembled in clips, see page 40.

Pigtail fuses can be provided:

1. In Bulk.
 2. On Axial Tape & Reel.
 3. Radial Formed & Cut.
 4. With Heat Shrink Tubing over body.
- See Page 41 for details.

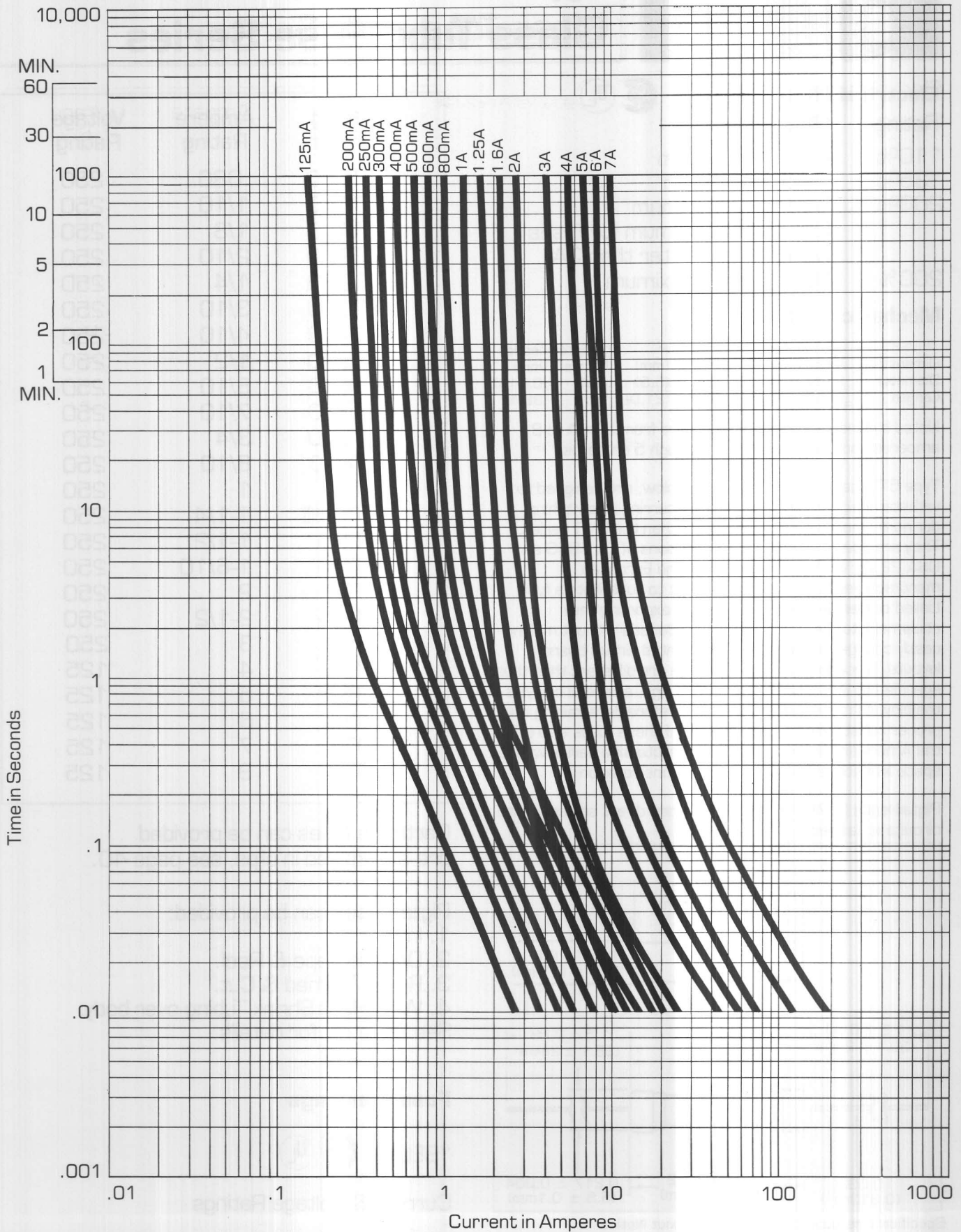
Fuse Markings

"BEL,"  

Current & Voltage Ratings

Bel 5MT/5MTP

Time-Current Characteristics Curve



Bel Fuse Inc.

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Specifications Subject To Change Without Notice



Type 5TT/5TTP Slow Blow Glass Tube Fuse Series

Electrical Characteristics



Rating	Blow Time
110%	4 hours minimum
135%	1 hour maximum
200%	5 seconds minimum (3 seconds minimum for fuses with rating greater than 3A)
200%	30 seconds, maximum

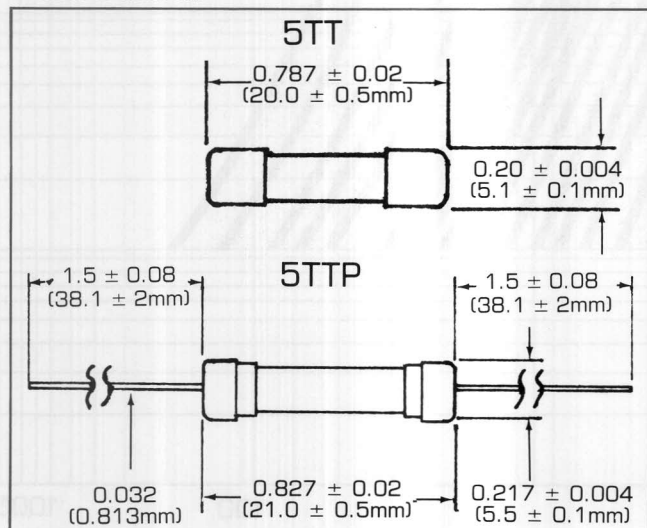
Mechanical Dimensions

	5TT		5TTP		Pigtail Leads	
Dimensions	Inches	(mm)	Inches	(mm)	Inches	(mm)
Diameter	0.200	(5.1)	0.217	(5.5)	.032	(0.813)
Length	0.787	(20)	.827	(21.0)	1.5	(38.1)

Listed by Underwriters' Laboratories from 50mA to 8 amperes and Certified by CSA through 5 amperes.

Type 5TT fuses, described as slow blow, are designed to withstand higher surge currents occurring at switching during the normal life of equipment than the 5MT series. They are built to meet the specifications of UL 198G and CSA 22.2, No. 59-2. They permit the European manufacturers of original equipment to substitute a fuse Listed or Certified by UL/CSA when exporting their equipment to the United States or Canada without making costly changes in mountings and printed circuit board layouts. Since fusing characteristics are different than those specified by IEC 127 for specific ratings, a careful analysis of the blowing curves should be made before determining the proper substitution. The small size of these fuses also offers the American/Canadian designer a protective device where space limitations are an important consideration.

Pigtail leads (5MFP) are available when direct soldering into circuits is desired.



Specifications Subject To Change Without Notice



Catalog Number	Ampere Rating	Voltage Rating
5TT080	.080	250
5TT100	1/10	250
5TT125	1/8	250
5TT200	2/10	250
5TT250	1/4	250
5TT300	3/10	250
5TT400	4/10	250
5TT500	1/2	250
5TT600	6/10	250
5TT700	7/10	250
5TT750	3/4	250
5TT800	8/10	250
5TT1	1	250
5TT1.25	1-1/4	250
5TT1.5	1-1/2	250
5TT1.6	1-6/10	250
5TT2	2	250
5TT2.5	2-1/2	250
5TT3	3	250
5TT4	4	125
5TT5	5	125
5TT6	6	125
5TT7	7	125
5TT8	8	125

Cartridge fuses can be provided pre-assembled in clips, see page 40.

Pigtail fuses can be provided:

1. In Bulk.
 2. On Axial Tape & Reel.
 3. Radial Formed & Cut.
 4. With Heat Shrink Tubing over body.
- See Page 41 for details.

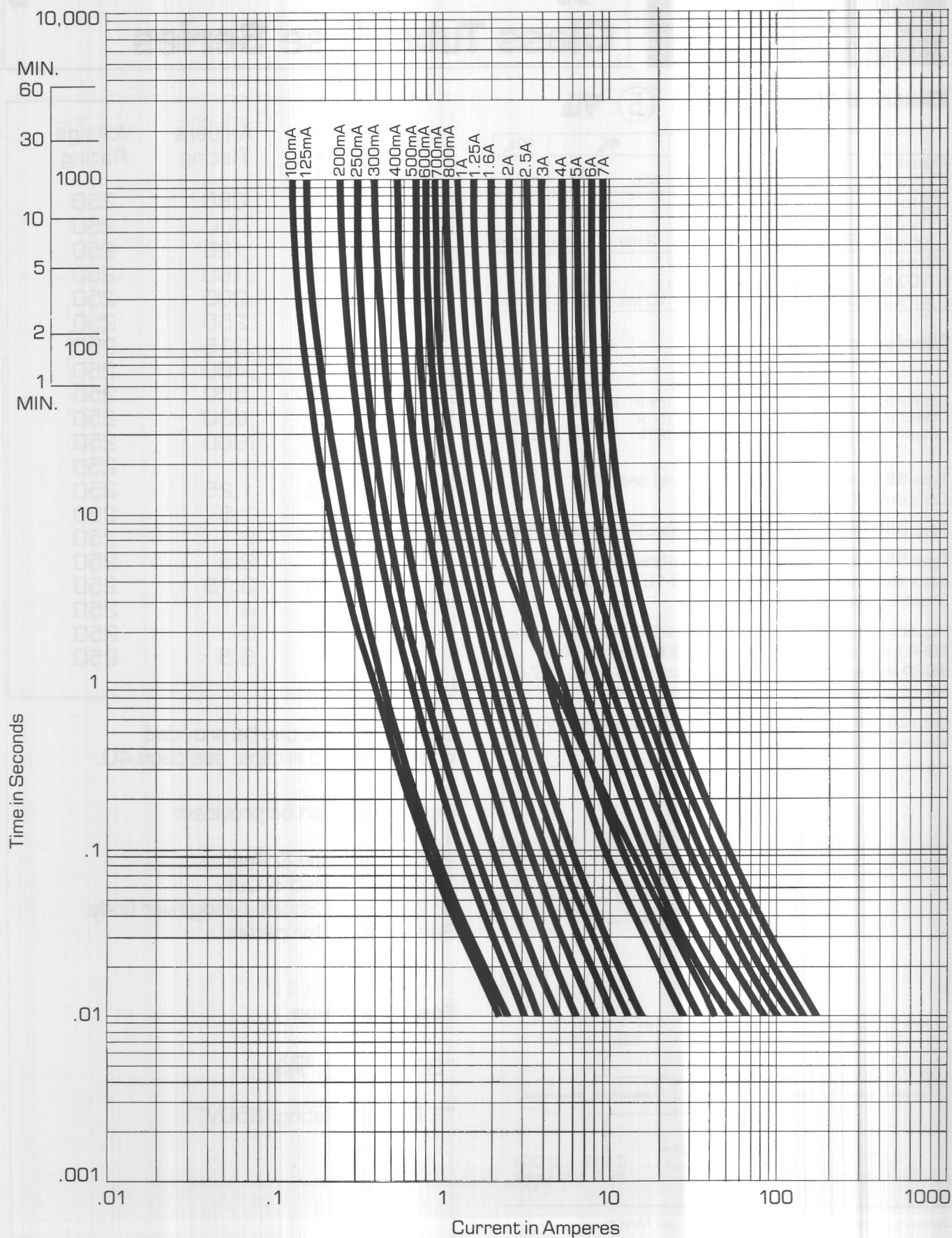
Fuse Markings

"BEL,"  

Current & Voltage Ratings

Bel 5TT/5TTP

Time-Current Characteristics Curve



Bel Fuse Inc.

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Specifications Subject To Change Without Notice



Type 5SF/5SFP Quick Acting Glass Tube Fuse Series

Electrical Characteristics

	2.1I _n		2.75I _n		4I _n		10I _n
Rated Current	Max.	Min.	Max.	Min.	Max.	Min.	Max.
32 to 100 mA inclusive	30 min.	10 ms	500 ms	3 ms	100 ms	20 ms	
Above 100 mA to 6.3A	30 min.	50 ms	2s	10 ms	300 ms	20 ms	

Mechanical Dimensions

	5SF		5SFP		Pigtail Leads	
Dimensions	Inches	(mm)	Inches	(mm)	Inches	(mm)
Diameter	0.200	(5.1)	0.217	(5.5)	.032	(0.813)
Length	0.787	(20)	.827	(21)	1.5	(38.1)

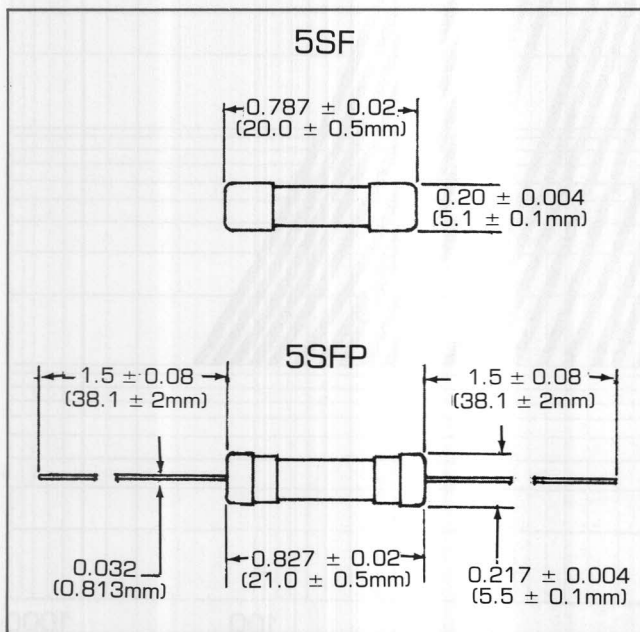
Type **5SF** fuses are **SEMKO** Approved and  Component Recognized by **UL**.

Type **5SFP** fuses are  Component Recognized by **UL**.

Type **5SF** fuses are quick-acting, low-breaking capacity, in accordance with specifications of IEC-127-2, Standard Sheet 2 (Type **F**).

Pigtail fuses are not covered in IEC-127-2, therefore, Type **5SFP** fuses are not eligible for **SEMKO** Approval. Type **5SFP** do meet the electrical characteristics of IEC 127-2, SS 2 (Type **F**).

Both **5SF** & **5SFP** are UL Component Recognized for the electrical characteristics in IEC 127-2.



Specifications Subject To Change Without Notice



Catalog Number	Ampere Rating	Voltage Rating
5SF080	.080	250
5SF100	.100	250
5SF125	.125	250
5SF160	.160	250
5SF200	.200	250
5SF250	.250	250
5SF315	.315	250
5SF400	.400	250
5SF500	.500	250
5SF630	.630	250
5SF800	.800	250
5SF1	1	250
5SF1.25	1.25	250
5SF1.6	1.6	250
5SF2	2	250
5SF2.5	2.5	250
5SF3.15	3.15	250
5SF4	4	250
5SF5	5	250
5SF6.3	6.3	250

Cartridge fuses can be provided pre-assembled in clips, see page 40.

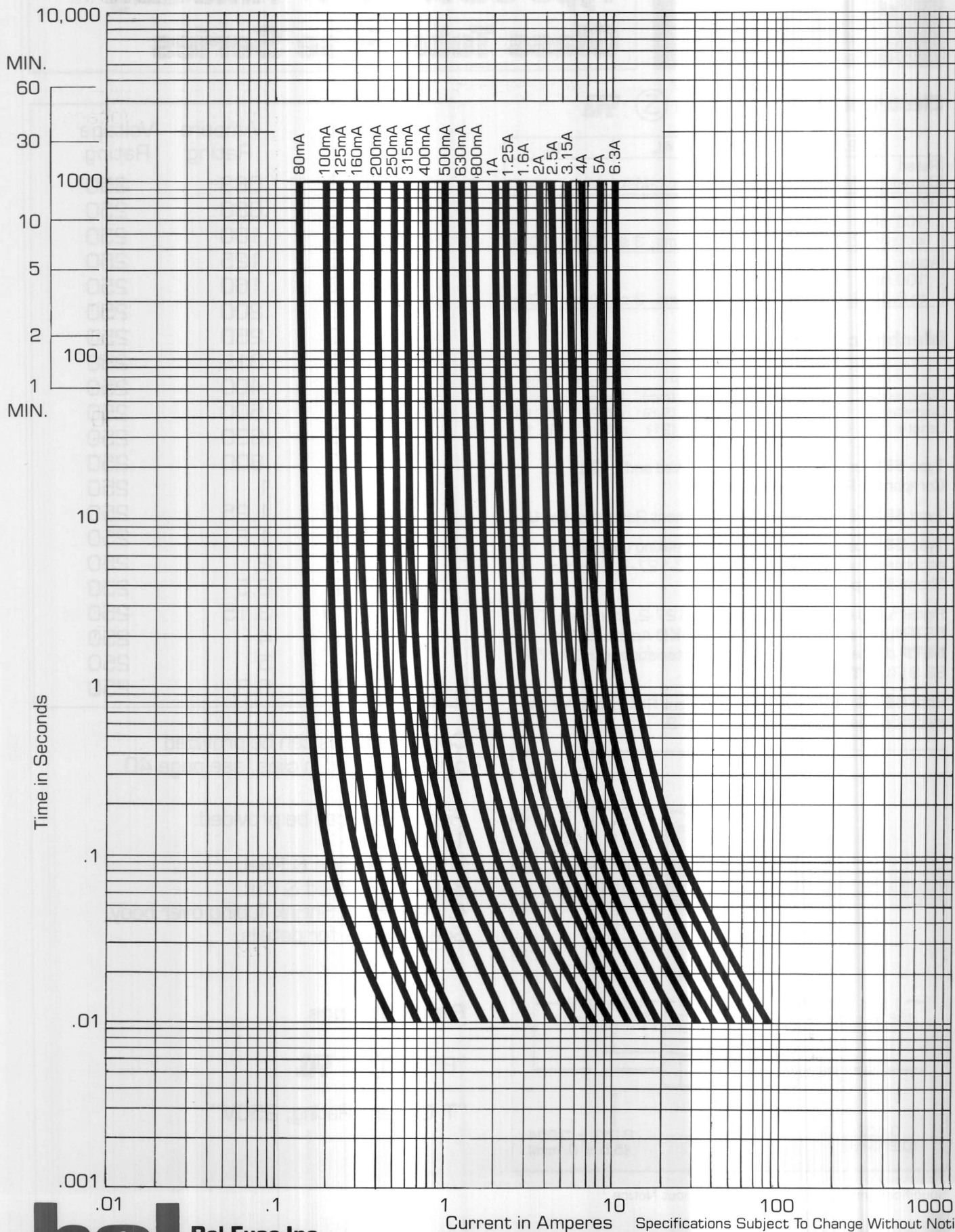
Pigtail fuses can be provided:

1. In bulk.
 2. On Axial Tape & Reel.
 3. Radial Formed & Cut.
 4. With Heat Shrink Tubing over body.
- See Page 41 for details.

Fuse Markings

"BEL,"  

"F, Current Rating, 250V"





Type 5ST/5STP Time Lag Glass Tube Fuse Series

Electrical Characteristics

	2.1I _n		2.75I _n		4I _n		10I _n	
Rated Current	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
32 to 100 mA inclusive	2 min.	200 ms	10 s	40 ms	3 s	10 ms	300 ms	
Above 100 mA to 6.3A	2 min.	600 ms	10 s	150 ms	3 s	20 ms	300 ms	

Mechanical Dimensions

	5ST		5STP		Pigtail Leads	
Dimensions	Inches	(mm)	Inches	(mm)	Inches	(mm)
Diameter	0.200	(5.1)	0.217	(5.5)	.032	(0.813)
Length	0.787	(20)	.827	(21)	1.5	(38.1)

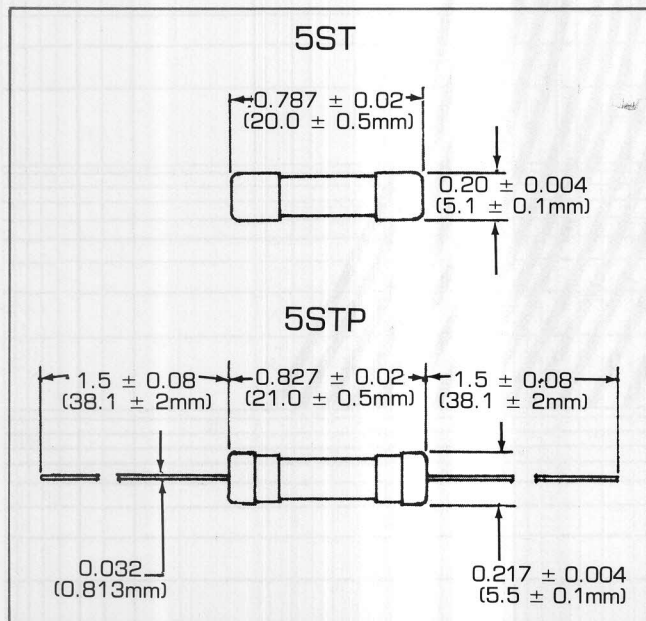
Type **5ST** fuses are **SEMKO** Approved and 
Component Recognized by **UL**.

Type **5STP** fuses are  Component Recognized by **UL**.

Type **5ST** fuses are time-lag, low-breaking capacity, in accordance with specifications of IEC-127-2, Standard Sheet 3 [Type **T**].

Pigtail fuses are not covered in IEC-127-2, therefore, Type 5STP fuses are not eligible for **SEMKO** Approval. Type **5STP** do meet the electrical characteristics of IEC 127-2, SS 3 [Type **T**].

Both **5ST & 5STP** are UL Component Recognized for the electrical characteristics in IEC 127-2.



Specifications Subject To Change Without Notice



Catalog Number	Ampere Rating	Voltage Rating
5ST063	.063	250
5ST080	.080	250
5ST100	.100	250
5ST125	.125	250
5ST160	.160	250
5ST200	.200	250
5ST250	.250	250
5ST315	.315	250
5ST400	.400	250
5ST500	.500	250
5ST630	.630	250
5ST800	.800	250
5ST1	1	250
5ST1.25	1.25	250
5ST1.6	1.6	250
5ST2	2	250
5ST2.5	2.5	250
5ST3.15	3.15	250
5ST4	4	250
5ST5	5	250
5ST6.3	6.3	250

Cartridge fuses can be provided pre-assembled in clips, see page 40.

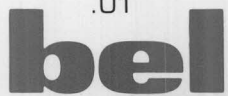
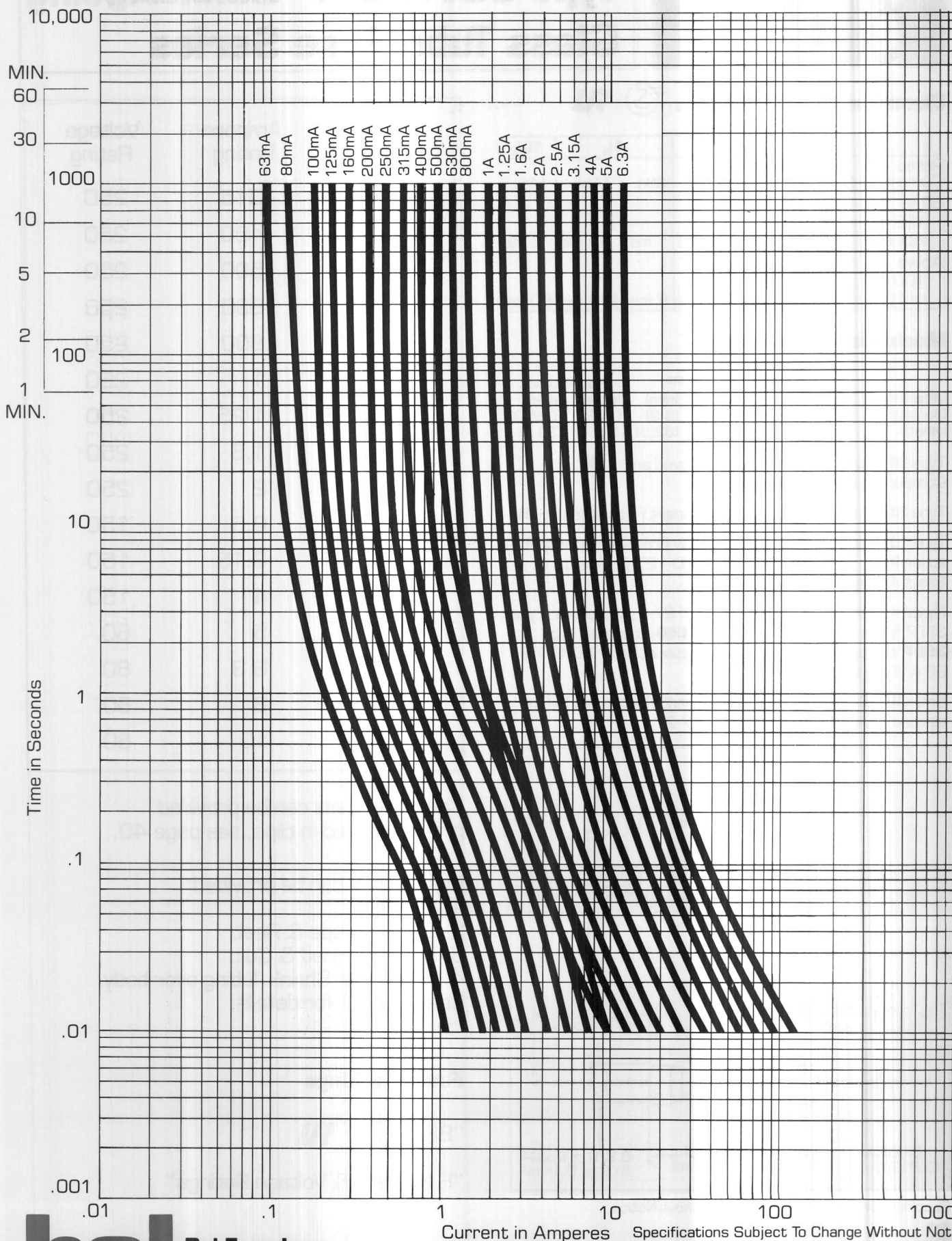
Pigtail fuses can be provided:

1. In bulk.
 2. On Axial Tape & Reel.
 3. Radial Formed & Cut.
 4. With Heat Shrink Tubing over body.
- See Page 41 for details.

Fuse Markings

"BEL,"  

"T, Current Rating, 250V"



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Current in Amperes

Specifications Subject To Change Without Notice



Type 3SF/3SFP Quick Acting Glass Tube Fuse Series

Electrical Characteristics



	2I _n		2.75I _n		4I _n		10I _n
Rated Current	Max.	Min.	Max.	Min.	Max.	Min.	Max.
50 to 100 mA inclusive	20s	2 ms	200 ms	1 ms	30 ms	5 ms	
Above 100 mA to 10 A	20 s	20 ms	1500 ms	8 ms	400 ms	80 ms	

Mechanical Dimensions

	3SF		3SFP		Pigtail Leads	
Dimensions	Inches	(mm)	Inches	(mm)	Inches	(mm)
Diameter	0.250	(6.35)	0.270	(6.9)	0.032	(0.813)
Length	1.25	(31.8)	1.28	(32.5)	1.5	(38.1)

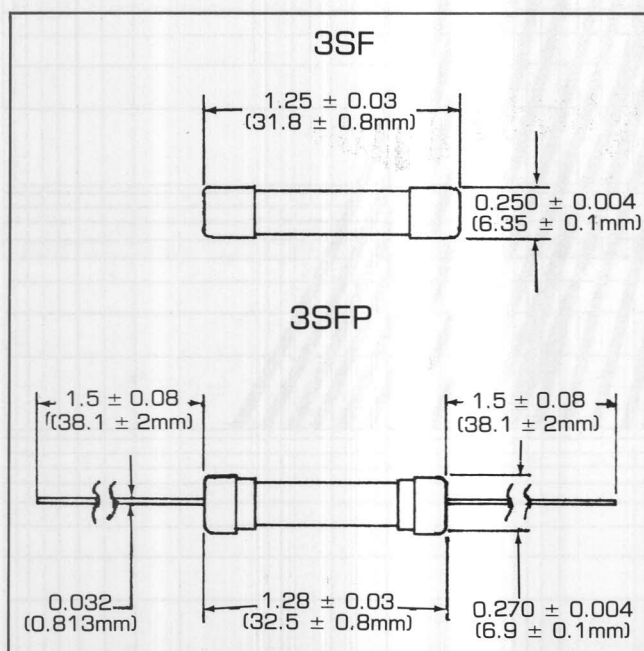
Type **3SF** fuses are **SEMKO** Approved and Component Recognized by **UL**.

Type **3SFP** fuses are **UL** Component Recognized by **UL**.

Type **3SF** fuses are quick-acting, low-breaking capacity, in accordance with specifications of IEC-127-2, Standard Sheet 4 [Type F].

Pigtail fuses are not covered in IEC-127-2, therefore, Type 3SFP fuses are not eligible for **SEMKO** Approval. Type **3SFP** do meet the electrical characteristics of IEC 127-2, SS 4 [Type F].

Both **3SF & 3SFP** are UL Component Recognized for the electrical characteristics in IEC 127-2.



Specifications Subject To Change Without Notice



Catalog Number	Ampere Rating	Voltage Rating
3SF315	.315	250
3SF400	.400	250
3SF500	.500	250
3SF630	.630	250
3SF800	.800	250
3SF1	1	250
3SF1.25	1.25	250
3SF1.6	1.6	250
3SF2	2	250
3SF2.5	2.5	150
3SF3.15	3.15	150
3SF4	4	150
3SF5	5	60
3SF6.3	6.3	60
3SF8	8	60
3SF10	10	60

Cartridge fuses can be provided pre-assembled in clips, see page 40.

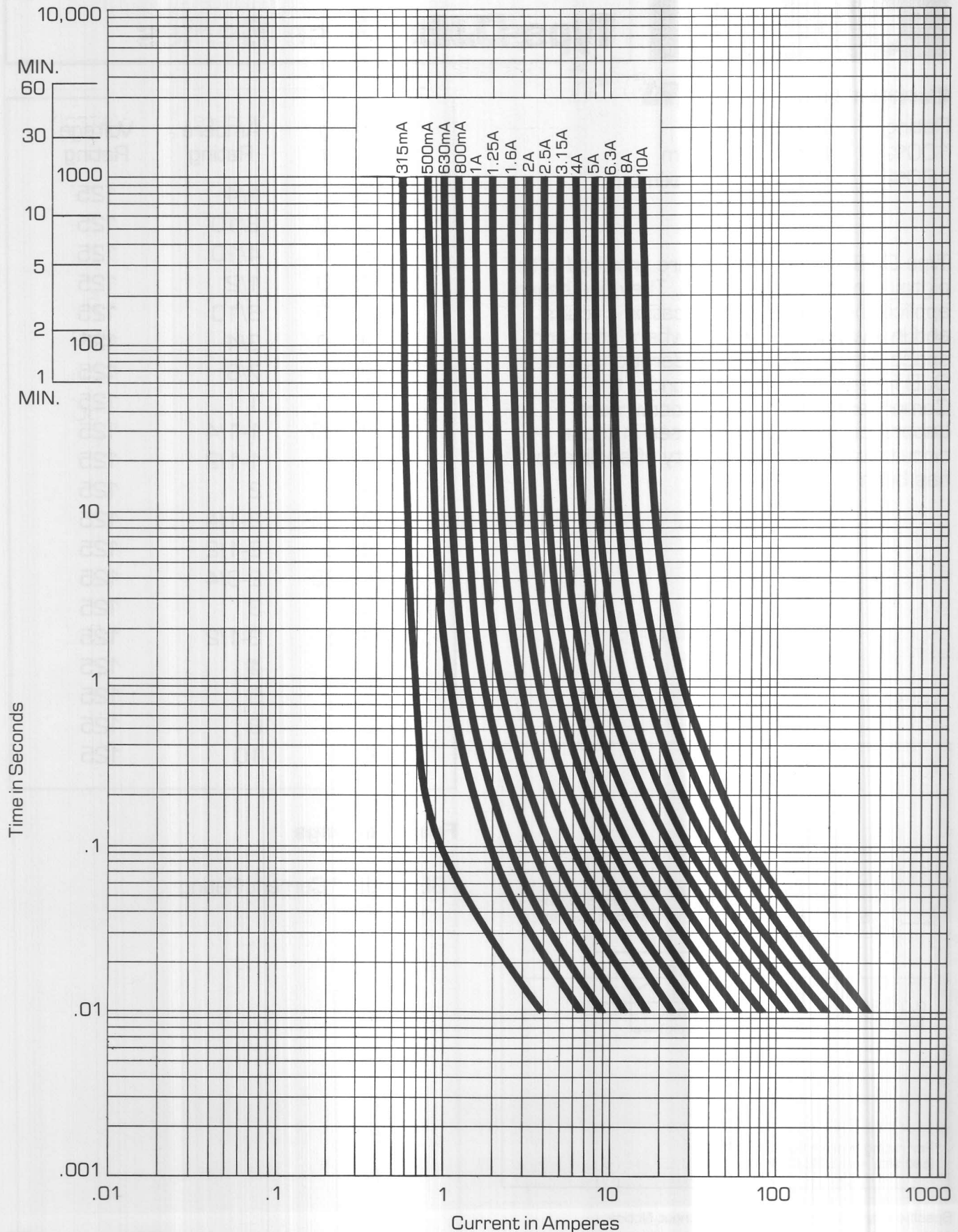
Pigtail fuses can be provided:

1. In Bulk.
 2. On Axial Tape & Reel.
 3. Radial Formed & Cut.
 4. With Heat Shrink Tubing over body.
- See Page 41 for details.

Fuse Markings

"BEL,"  

"F, Current & Voltage Ratings"





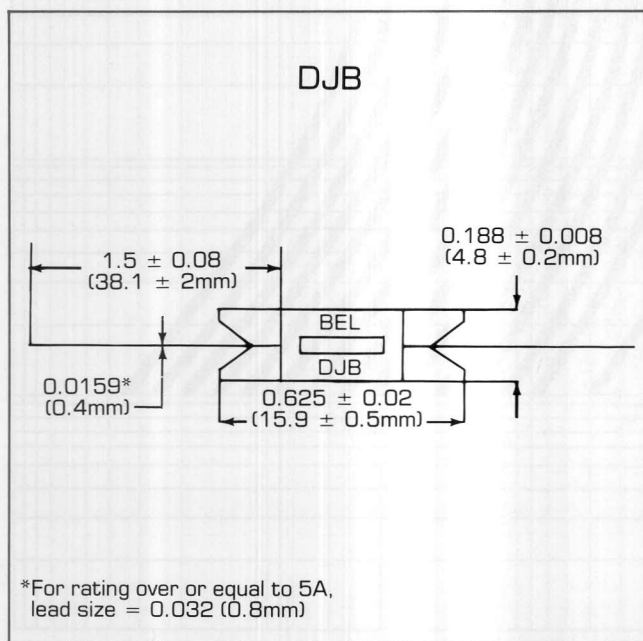
Flat Pack Fuses Type DJB

Electrical Characteristics

Rating	Blow Time
100%	4 hours, minimum
160%	25 seconds, maximum

Type DJB flat pack fuses are provided with pigtailed for direct soldering. They find broad application in telecommunication circuits and in low energy circuits where cost and space are important considerations. The DJB fuses are Recognized under the Component Program of Underwriters' Laboratories and may be used in those circuits where the suitability of application has been investigated.

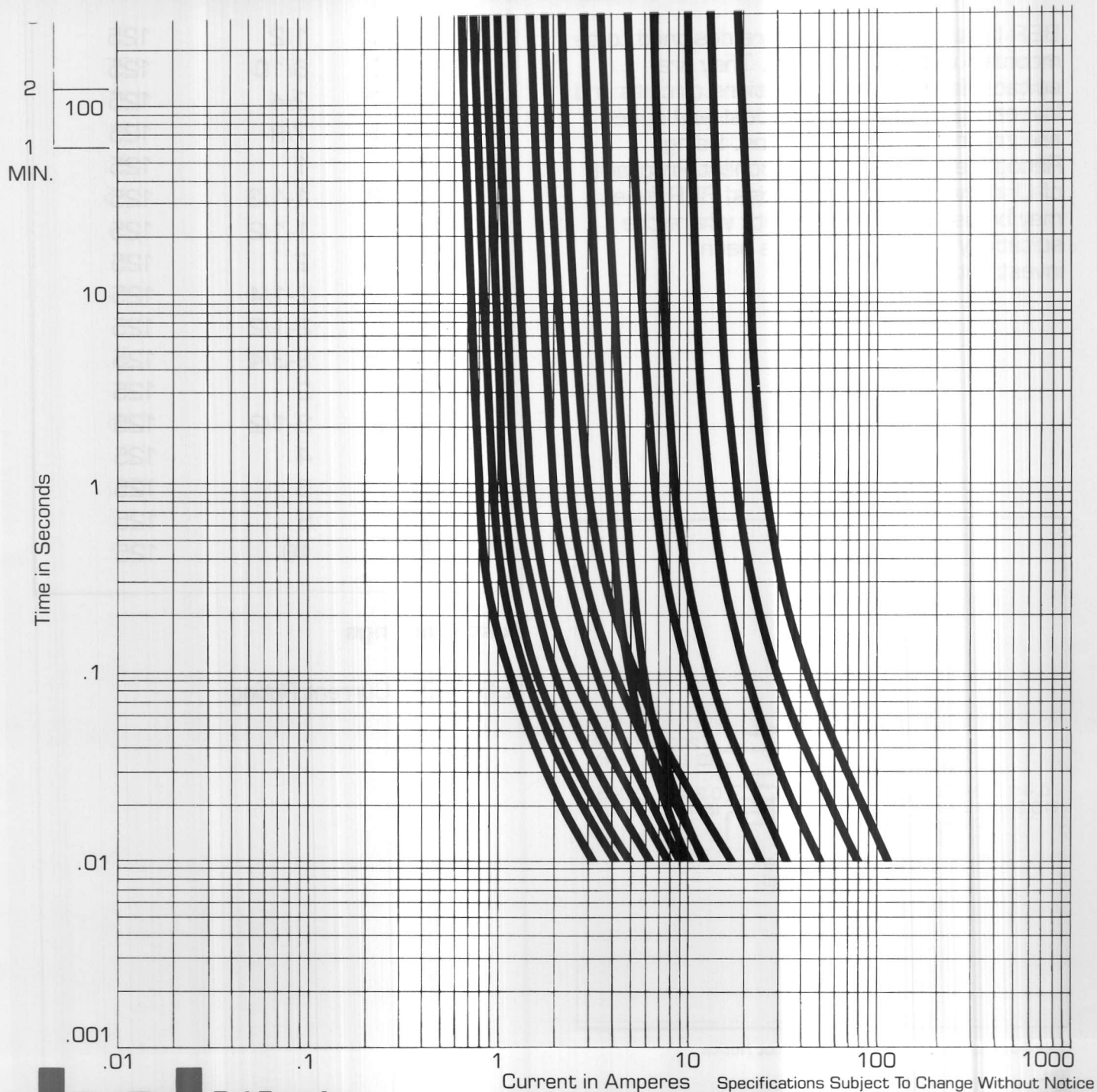
Catalog Number	Ampere Rating	Voltage Rating
DJB250	1/4	125
DJB300	3/10	125
DJB400	4/10	125
DJB500	1/2	125
DJB600	6/10	125
DJB750	3/4	125
DJB875	7/8	125
DJB1	1	125
DJB1.25	1-1/4	125
DJB1.5	1-1/2	125
DJB2	2	125
DJB2.25	2-1/4	125
DJB2.5	2-1/2	125
DJB2.75	2-3/4	125
DJB3	3	125
DJB3.5	3-1/2	125
DJB4	4	125
DJB5	5	125
DJB8	8	125
DJB10	10	125



Fuse Markings

"BEL, DJB," Current Rating

Specifications Subject To Change Without Notice



bel

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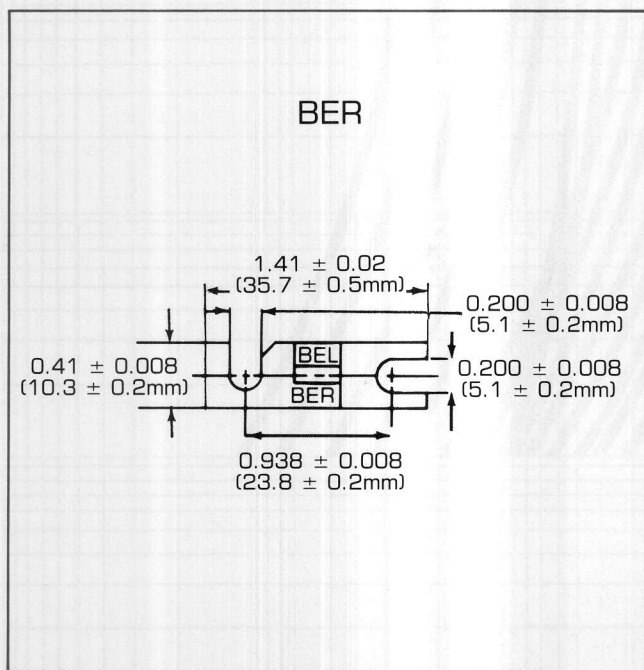
Flat Pack Fuses Type BER

Electrical Characteristics

Rating	Blow Time
100%	4 hours, minimum
135%	1 hour, maximum
200%	1 minute, maximum

BER type flat pack fuses are designed to be mounted with #10 screws. They are suitable for telecommunications circuits and low energy circuits where cost and space are important considerations. Being Recognized under the Component Program of Underwriters' Laboratories, BER fuses may be used in those circuits where the suitability of application has been investigated.

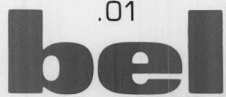
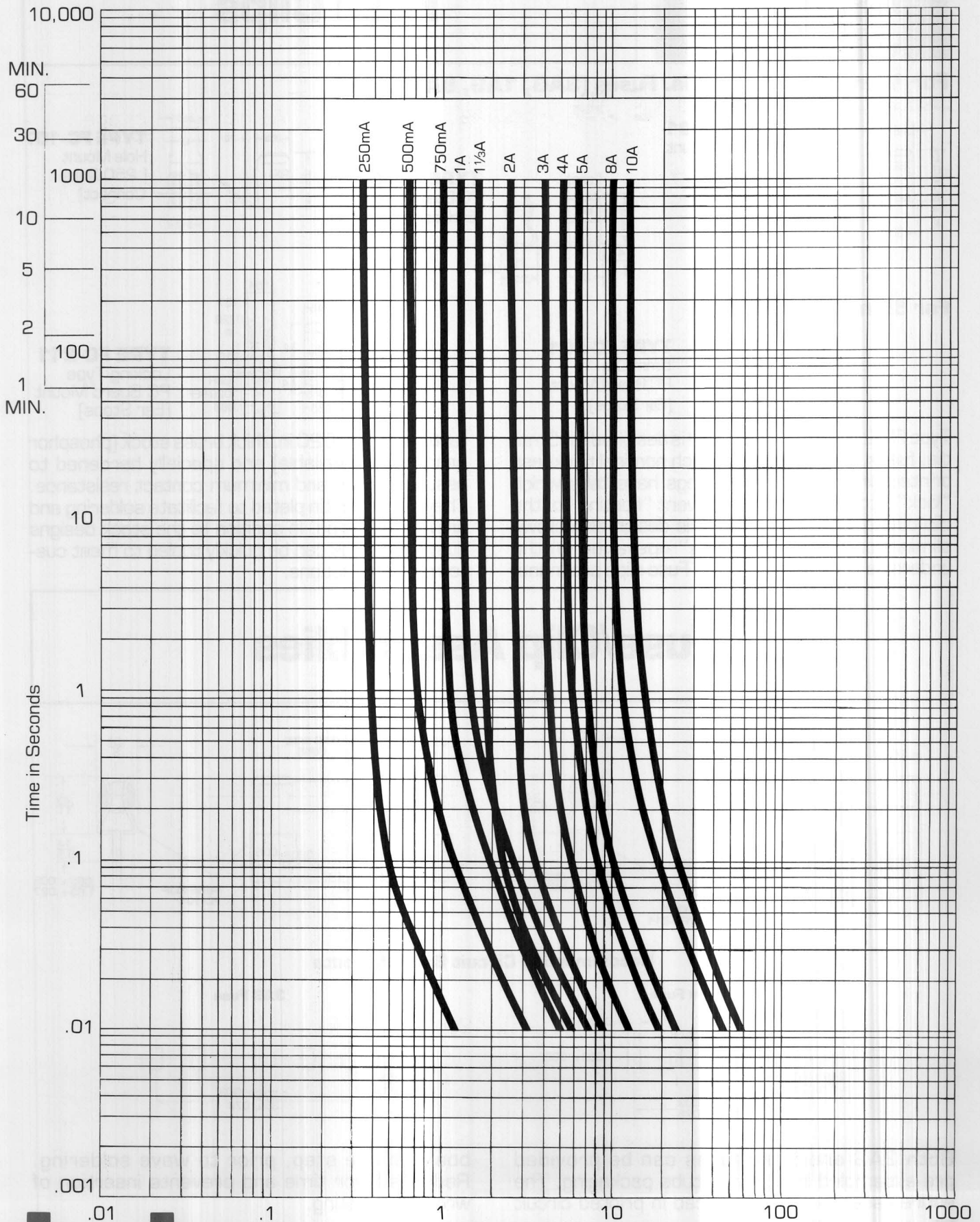
Catalog Number	Ampere Rating	Voltage Rating
BER250	1/4	125
BER300	3/10	125
BER400	4/10	125
BER500	1/2	125
BER600	6/10	125
BER750	3/4	125
BER875	7/8	125
BER1	1	125
BER1.33	1-1/3	125
BER1.5	1-1/2	125
BER2	2	125
BER2.25	2-1/4	125
BER2.5	2-1/2	125
BER2.75	2-3/4	125
BER3	3	125
BER3.5	3-1/2	125
BER4	4	125
BER5	5	125
BER8	8	125
BER10	10	125



Specifications Subject To Change Without Notice

Fuse Markings

"BEL, BER" Current Rating



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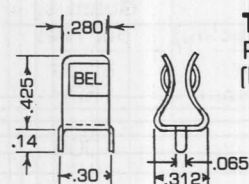
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Current in Amperes Specifications Subject To Change Without Notice

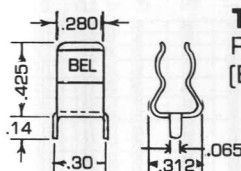
bel

Fuse Clips

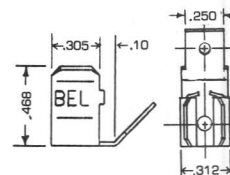
For 1/4 inch [6.35mm] Dia. Fuses (3AG, 1AG, 8AG)



TYPE FC-101
PC Board Mount
(Ear Stops)

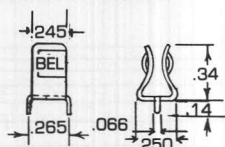


TYPE FC-102
PC Board Mount
(Earless)

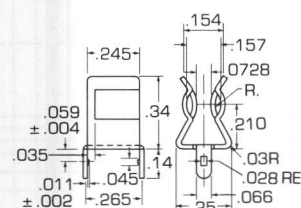


TYPE FC-107
Hole Mount
[.250 Quick
Connect]

For 5mm Dia. Fuses



TYPE FC-201
5mm Clip
PC Board Mount
(Ear Stops)

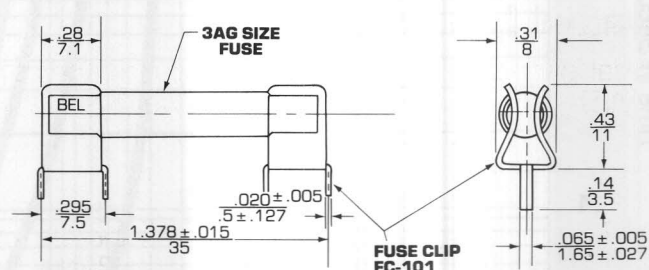
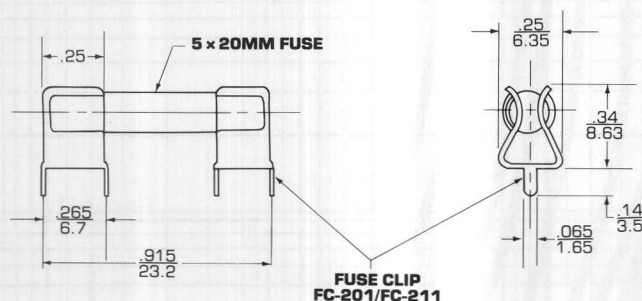


TYPE FC-211
Locking Type
PC Board Mount
(Ear Stops)

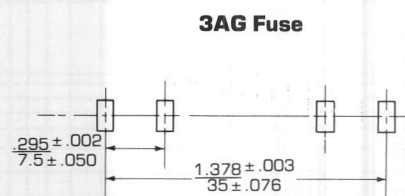
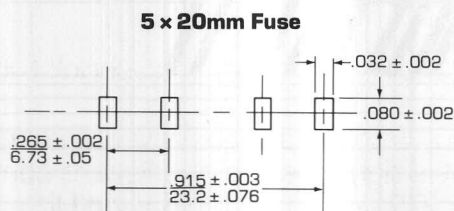
Type FC-211 **LOCKING CLIP** is designed for 5mm dia. fuses, for use in 0.062 inch nominal thickness printed circuit boards. The legs have tabs which "lock" into the board and prevent "floating" of the clip during wave soldering. This design also allows elimination of the "clinch" operation on the underside of the board. All Bel Fuse clips are manu-

factured from .020 in. thick brass stock (phosphor bronze also available) and specially hardened to assure long life and minimum contact resistance. They are bright tin plated to facilitate soldering and prevent oxidation. In addition to the stock designs illustrated, clips can be quickly tooled to meet customer specifications.

Fuse/Clip Assemblies



Recommended Circuit Board Layouts



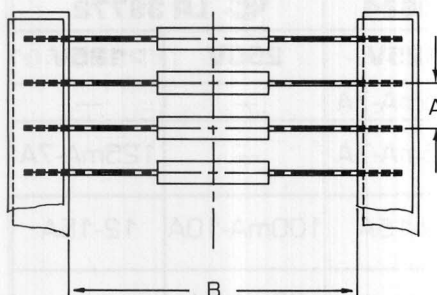
Both 3AG and 5mm fuses can be provided pre-assembled in clips and tube packaging. The entire assembly can be placed in printed circuit

board in one step, prior to wave soldering. Reduces labor time and prevents insertion of wrong fuse rating.



Tape & Reel Packaging

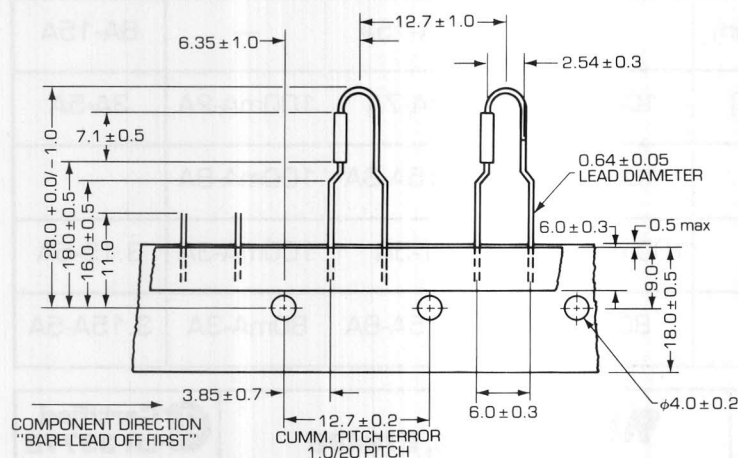
All axial leaded fuses can be provided on Tape & Reel per **EIA-296-D**.



Fuse Types	A (Pitch)	B (inside tape spacing)	Quantity per reel
MICRO FUSE—MQ, MS, MFA	5mm	Class I—52.4mm	2500
5 x 20 Pigtail Fuse	10mm	Class II—63.5mm	1500
3AG [$\frac{1}{4} \times 1\frac{1}{4}$ in.] Pigtail Fuses	10mm	Class III—73mm	1000

To order, specify "T&R" after part number, examples:
MQ500T&R, 5MFP250T&R and 3AP2T&R

Euroform Tape & Reel



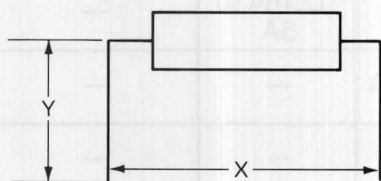
Type MQ and MS micro fuses can be provided on Radial Tape & Reel, in **"EUROFORM" Package**.

Spacing of 6mm between leads allows grip & clinch by auto-insert robot for use in 5mm [0.200 in.] spaced PWB holes. Vertical position of fuse saves lateral board space.

To order, specify "VT" after part number, examples:
MQ500VT and MS3VT

Radial Lead Forming

Axial leaded fuses can be radial-formed and cut for easy hand insertion into PWB—either into sockets or for wave-soldering.



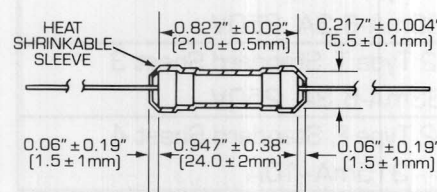
Fuse Type	X (lead center to center) (inches)	Y (inches)
Micro [MQ, MS]	0.400	0.5
5 x 20mm	1.0	0.5
3AP [$\frac{1}{4} \times 1\frac{1}{4}$ in.]	1.5	0.5

To order, specify "R" after Type number, examples:

MR500, 5MFP250 and 3APR2

[Note—different values of X & Y available—contact factory]

Heat Shrink Tubing



Pigtail fuses can be provided with clear, heat-shrink tubing covering the fuse body.

Tubing prevents contact with live parts, prevents shorting to circuit tracks, and allows tight spacing of adjacent components. Both General Purpose [GP] insulating tubing and UL Recognized, VW-1 Flame Rated tubing are available.

To order, specify "GP" or "VW" after part number, examples:

3AP2GP and 5MFP250VW



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Safety Agency Approvals— Quick Reference

Catalog Type	Page	Style	Size	UL Listed 408D File No. E20624		SP Certified LR 39772	
				250V	125V	250V	125V
MFA	10	Axial Lead	Micro	—	125mA-7A	—	—
MB	10	Radial Plug-In	Micro	—	125mA-7A	—	125mA-7A
MBP	10	Radial Pigtail	Micro				
3AG	12	Cartridge	3AG [$1\frac{1}{4} \times 1\frac{1}{4}$ in]	100mA-10A	12-15A	100mA-10A	12-15A
3AP	12	Pigtail					
3SB	14	Cartridge	3AG [$1\frac{1}{4} \times 1\frac{1}{4}$ in]	62mA-8A	—	62mA-8A	—
3SBP	14	Pigtail					
3AB	16	Cartridge	3AB [$1\frac{1}{4} \times 1\frac{1}{4}$ in]	500mA-10A	—	500mA-8A	10A
3ABP	16	Pigtail					
3WO	18	Cartridge	3AG [$1\frac{1}{4} \times 1\frac{1}{4}$ in]	—	6A-15A	—	6A-15A
3WOP	18	Pigtail					
8AG	22	Cartridge	8AG [$1\frac{1}{4} \times 1$ in]	100mA-2A	3A-7A	100mA-2A	3A-5A
8AP	22	Pigtail					
5MF	24	Cartridge	5 × 20mm	100mA-3A	3.15A-8A	100mA-8A	—
5MFP	24	Pigtail					
5MT	26	Cartridge	5 × 20mm	100mA-800mA	1-5A	100mA-3A	3.15-5A
5MTP	26	Pigtail					
5TT	28	Cartridge	5 × 20mm	80mA-3A	3.15A-8A	80mA-3A	3.15A-5A
5TTP	28	Pigtail					

Catalog Type	Page	Style	Size	R Recognized File E20624, E76496			SP Certified LR 39772
				32V	125V	300V	
MQ	6	Axial Lead	Micro	—	125mA-15A	—	125mA-15A
MS	8	Axial Lead	Micro	—	375mA-7A	—	375mA-7A
300V	20	Cartridge	5 × 20mm	—	—	100mA to 5A	—
300VP	20	Pigtail					
DJB	36	Leaded Flat Pack	—	—	250mA-10A	—	—
BER	38	Flat Pack	—				
1AG	*	Cartridge	1AG [$1\frac{1}{4} \times 5\frac{5}{8}$ in]	750mA-15A	—	—	—
1AP	*	Pigtail					

Catalog Type	Page	Style	Size	SEMKO 0184A	R Recognized File E20624
5SF	30	Cartridge	5 × 20mm	IEC 127-2 Type F, Standard Sheet 2 80mA-6.3A, 250V	
5SFP	30	Leaded			
5ST	32	Cartridge	5 × 20mm	IEC 127-2 Type T, Standard Sheet 3 63mA-6.3A, 250V	
5STP	32	Leaded			
3SF	34	Cartridge	6.3 × 32mm	IEC 127-2 Type F, Standard Sheet 4 315mA-10A	
3SFP	34	Leaded			

* Contact Factory
A Cross Reference Chart Will Be Found On Page 43



Fuse Cross Reference

Bussmann	Bel Fuse	Page	Littelfuse	Bel Fuse	Page
ABC	3AB	16	217	5SF	30
AGA	1AG	*	218	5ST	32
AGC	3AG	12	235	5MF	24
AGX	8AG	22	236	5MFP	24
GDB	5SF	30	238	5TTP	28
GDB-V	5SFP	30	239	5TT	28
GDC	5ST	32	230	MJS	*
GDC-V	5STP	32	251 +	MQ	6
GFA	MFA	10	252 +	MQR	6, 41
GJV	3AP	12	255 +	MQ	6
GLN	MFAR	*	256 +	MQR	6, 41
GLX	MFAR	*	265	MQ	6
GMA	5MF	24	266	MQR	6, 41
GMA-V	5MFP	24	273	MB	10
GMC	5MT	26	275	MQ	6
GMC-V	5MTP	26	276	MQR	6, 41
GMW	MB	10	279	MBP	10
LKB	DJB	36	301	1AG	*
LKC	DJB	36	311	3AG	12
MCR	MQ	6	312	3AG	12
MDL	3SB	14	313	3SB	14
MDQ	3SB	14	314	3AB	16
MDV	3SBP	14	315	3SBP	14
MGB	3AG	12	318	3AP	12
MKB	8AG	22	324	3ABP	16
MSL	3SB	14	361	8AG	22
MSV	3SBP	14	362	8AG	22
MWO	3WO	18	368	8AP	22
WER	BER	38	102071	FC-101	40
1A1907-06	FC-101	40	102074	FC-102	40

+ — These are conformal coated fuses, Bel Type MQ Fuses are molded construction. * — Consult factory

Equivalent Ratings For Fuses Less Than 1 Amp

Fraction	Decimal	Milliamps
1/500	.002	2
1/200	.005	5
1/100	.010	10
1/32	.032	32
1/16	.0625	63
1/10	.100	100
1/8	.125	125
15/100	.150	150
18/100	.180	180
3/16	.187	187
2/10	.200	200
1/4	.250	250
3/10	.300	300
3/8	.375	375
4/10	.400	400
1/2	.500	500
3/4	.750	750
8/10	.800	800



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